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ENVIRONMENTAL ASSESSMENT BOARD

VOLUME:

271

DATE:

Tuesday, December 11, 1990

BEFORE:

A. KOVEN

CHAIRMAN

E. MARTEL

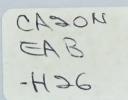
MEMBER





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ENVIRONMENTAL ASSESSMENT BOARD

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A. KOVEN

CHAIRMAN

E. MARTEL

MEMBER





(416) 482-3277



HEARING ON THE PROPOSAL BY THE MINISTRY OF NATURAL RESOURCES FOR A CLASS ENVIRONMENTAL ASSESSMENT FOR TIMBER MANAGEMENT ON CROWN LANDS IN ONTARIO

IN THE MATTER of the Environmental Assessment Act, R.S.O. 1980, c.140;

- and -

IN THE MATTER of the Class Environmental Assessment for Timber Management on Crown Lands in Ontario;

- and -

IN THE MATTER OF a Notice by the Honourable Jim Bradley, Minister of the Environment, requiring the Environmental Assessment Board to hold a hearing with respect to a Class Environmental Assessment (No. NR-AA-30) of an undertaking by the Ministry of Natural Resources for the activity of timber management on Crown Lands in Ontario!

Hearing held at the offices of the Ontario Highway Transport Commission, Britannica Building, 151 Bloor Street West, 10th Floor, Toronto, Ontario, on Tuesday, December 11, 1990, commencing at 9:00 a.m.

VOLUME 271

BEFORE:

MRS. ANNE KOVEN MR. ELIE MARTEL

Chairman Member



(i)

APPEARANCES

MS.	V. FREIDIN, Q.C. C. BLASTORAH)	MINISTRY OF NATURAL
MS.	K. MURPHY)	RESOURCES
	B. CAMPBELL J. SEABORN)	MINISTRY OF ENVIRONMENT
	B. HARVIE)	MINISTRY OF ENVIRONMENT
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MR.	R. COSMAN		ASSOCIATION and ONTARIO
MS.	E. CRONK)	LUMBER MANUFACTURERS'
MR.	P.R. CASSIDY)	ASSOCIATION
MR.	H. TURKSTRA		ENVIRONMENTAL ASSESSMENT BOARD
MR.	E. HANNA)	ONTARIO FEDERATION OF
	T. QUINNEY		ANGLERS & HUNTERS
	_	•	
MR.	D. HUNTER)	NISHNAWBE-ASKI NATION
MS.	N. KLEER)	and WINDIGO TRIBAL COUNCIL
	J.F. CASTRILLI		
	M. SWENARCHUK		FORESTS FOR TOMORROW
MR.	R. LINDGREN)	
MR.	P. SANFORD)	KIMBERLY-CLARK OF CANADA
MS.	L. NICHOLLS)	KIMBERLY-CLARK OF CANADA LIMITED and SPRUCE FALLS
MR.	D. WOOD)	POWER & PAPER COMPANY
MD	D MacDONALD		ONTARIO FEDERATION OF
PIR.	D. MacDONALD		LABOUR
			Hibook
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MD	D EDWARD	,	NODWIEDN ONWARTS MOURTON
	R. EDWARDS)	NORTHERN ONTARIO TOURIST
MR.	B. McKERCHER)	OUTFITTERS ASSOCIATION

APPEARANCES: (Cont'd)

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	RED LAKE-EAR FALLS JOINT MUNICIPAL COMMITTEE
	NORTHWESTERN ONTARIO ASSOCIATED CHAMBERS OF COMMERCE
MR. J.W. HARBELL) MR. S.M. MAKUCH)	GREAT LAKES FOREST
MR. J. EBBS	ONTARIO PROFESSIONAL FORESTERS ASSOCIATION
MR. D. KING	VENTURE TOURISM ASSOCIATION OF ONTARIO
MR. D. COLBORNE) MS. S.V. BAIR-MUIRHEAD)	GRAND COUNCIL TREATY #3
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MR. G.J. KINLIN	DEPARTMENT OF JUSTICE
MR. S.J. STEPINAC	MINISTRY OF NORTHERN DEVELOPMENT & MINES
MR. M. COATES	ONTARIO FORESTRY ASSOCIATION
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APPEARANCES: (Cont'd)

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SINGLE INDUSTRY TOWNS

MR. M.O. EDWARDS FORT FRANCES CHAMBER OF

COMMERCE

MR. P.D. McCUTCHEON GEORGE NIXON

MR. C. BRUNETTA NORTHWESTERN ONTARIO

TOURISM ASSOCIATION



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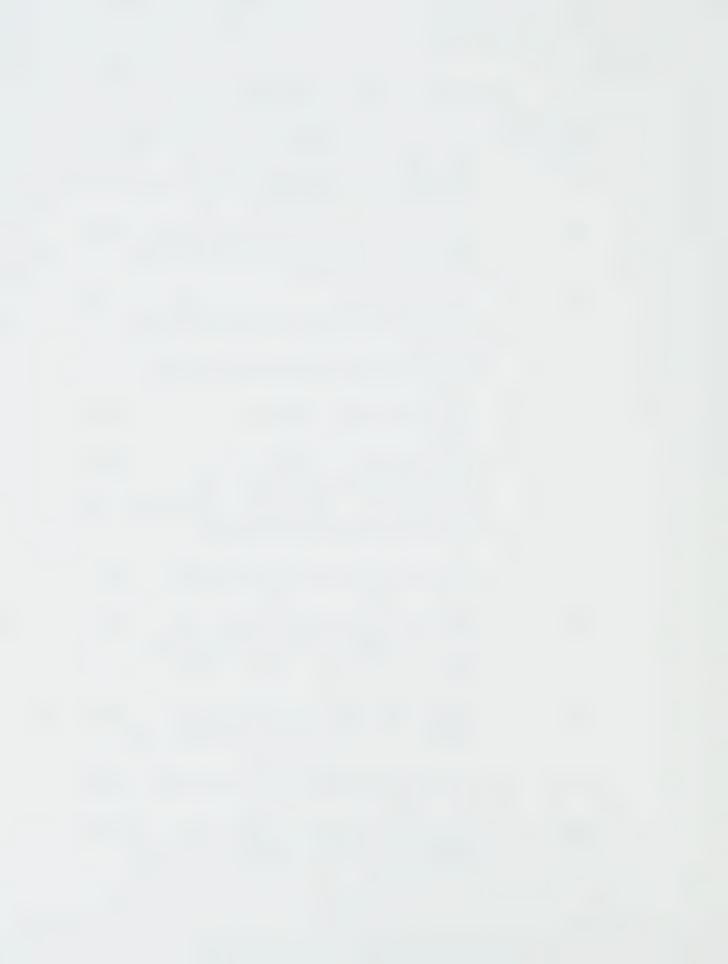
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1622		Map entitled Pikitigushi Lake, referred to in Mr. Benson's evider as Map 1A.	48920 nce
1623		Photo on a smaller scale of the saste as Exhibit 1621, a cut-over of Armstrong.	
1624		Three-page list of the management units and the maps that will be discussed in Mr. Benson's evidence each of those units.	
1625		Collage depicting a 1986 satellitimage of the Gordon Cosens manage unit.	
1626		Collage depicting a 1989 satellit image of the Gordon Cosens manage unit.	



1	Upon commencing at 9:20 a.m.
2	MADAM CHAIR: Please be seated.
3	MS. SWENARCHUK: We opened your source
4	book at Rimrod, the Rimrod article last night, and in
5	Volume I of the witness statement we are at page 111.
6	CRANDALL BENSON, Resumed
7	CONTINUED DIRECT EXAMINATION BY MS. SWENARCHUK:
8	Q. In the first paragraph on page 111,
9	Mr. Benson, you summarize information about cut sizes
.0	in Sweden and you refer to Rimrod as the source.
.1	So I would like to turn to that article
.2	now and, first of all, we see at the first page of the
.3	article, numbered E1-23, Mr. Rimrod is a Director of
. 4	Forestry for the Swedish Pulp and Paper Association.
.5	Is this an industry association, Mr.
.6	Benson?
.7	A. I don't know.
.8	Q. Now, at page 125, the next page, he
.9	has written a section on the importance of clearcutting
20	size and I wonder if you could read into the record for
21	the Board partway down that paragraph the sentence that
22	begins:
23	"Nevertheless, clearcut areas of more
24	than 50 hectares"
25	It is five lines above the chart.

_	A. The rest of the paragraph.
2	Q. Yes, please.
3	A. "Nevertheless, clearcut areas of more
4	than 50 hectares are very rarely
5	encountered today. Throughout the 1960's
6	and in the early 1970's the clearcuts
7	areas were consistently larger. In
8	northern Sweden it was not unusual to
9	have clearcuts of several hundred
10	hectares."
11	Q. Can you explain what the chart in the
12	handrawing represent, please?
13	A. Figure 6 is on page El25 directly
14	below what I read?
15	Q. Yes.
16	A. It is a chart of Sweden with the
17	north of Sweden being the (i) down to southern Sweden
18	which is (iv). To the right of the figure, it
19	indicates the average size of the clearcut areas for
20	those different regions of Sweden.
21	So for region one of Sweden, the company
22	and federal clearcut average size is 27.1 hectares,
23	whereas for private forest it would 3.6 hectares.
24	At the other extreme of the country,
25	(iv), it would be 6.3 hectares for company and federal

1	land and 1.8	hectares for private land. The average
2	for the entir	e country, the bottom line is 16.7 for
3	company and f	ederal and 2.5 for private land.
4		On the right it gives the average volume
5	per site in c	ubic metres for both federal and private
6	land. That w	ould be the average harvest.
7		MADAM CHAIR: Excuse me, Mr. Benson. Is
8	the private 1	and something like a woodlot? Is there
9	very much com	mercial logging on private lands?
10		THE WITNESS: It is much more commercial
11	in Sweden tha	n what it is here because the majority of
12	the land in t	he southern part of the country would be
13	privately own	ed, not owned by the Crown.
L 4		So the private land owner in Sweden plays
L5	quite a signi	ficant part in growing and producing
L6	timber.	
L7		MS. SWENARCHUK: Q. Now, Mr. Rimrod goes
18	on to say:	
19		"What decides the economy of felling,
20		however, is the felled volume per area.
21		Below a certain volume, machine
22	·	performance deteriorates and the cost
23		per cubic metre for moving machinery and
24		work supervision have become unacceptably
25		high. This minimum economic

1	volume has steadily decreased."
2	Now, is that comment relevant to Ontario
3	experience in your view?
4	A. I think it can be relevant to
5	Ontario. It is just a different way of looking at
6	logging cost for an area and relating it to the volume
7	you are getting off the site, and I haven't seen any
8	such curves drawn for Ontario, but I think the same
9	type of curves could be made.
10	I think, too, you have to consider that
11	sometimes they are logging a little differently than
12	what we are insomuch as they have developed different
13	logging machinery for their particular type of
14	forestry.
15	MADAM CHAIR: Excuse me, Mr. Benson. Mr.
16	Marek's evidence is that they log very differently than
17	we do with respect to their equipment, that it's much
18	smaller and so forth and very different from the
19	equipment we use in northern Ontario.
20	THE WITNESS: Their modern equipment
21	is some of it is much smaller and they have gone
22	into having machinery with longer boons on it that can
23	reach out and pick a tree from a longer distance and
24	delimb it and cut it to the length they want and bring
25	it back in.

1	So machinery is designed for their
2	operations that includes thinnings, so they can go in
3	and pick out the trees without a great deal of trouble.
4	It is also designed for the final harvest operation.
5	MS. SWENARCHUK: Q. Could I turn your
6	attention to the elements of this article that deal
7	with technological change.
8	First on page 124, Mr. Benson, in the
9	bottom right-hand column under the heading Contemporary
10	Forestry Trends, the last sentence of that paragraph
11	indicates:
12	"After the rapid development during the
13	1960's and 1970's with heavy
14	mechanization, largeness of scale and
15	standard methods there has been a
16	tangible change in attitude in favour of
17	biology, variation and adaptive methods."
18	And then turning back to page 125 and
19	commencing where we left off before in the bottom
20	left-hand column:
21	"The new machine systems are less heavy,
22	more flexible and easier to move. On the
23	whole, their productivity is higher and
24	they are less sensitive to reduced
25	performance on small sites. This also

1	means that altogether there are fewer
2	machines and people to be moved."
3	Now, is it your view, Mr. Benson, that
4	technological change towards smaller operating
5	machinery could be feasible in Ontario?
6	A. Well, certainly the Finns and Swedes
7	would hope so because they are selling that type of
8	machinery, and I think it could be possible.
9	It would require some other changes to
. 0	make it possible for the machinery is designed for
.1	the smaller land owner. We don't really have the same
. 2	situation for the smaller land owner to operate under.
.3	I think it's possible, it just depends
. 4	how you are going to manage the forest. I know I have
.5	been talking about more intensive management in certain
.6	areas and getting into the idea of thinning stands, and
.7	if we are going to do that, quite likely they will move
.8	into using some of this machinery. In fact, some of
.9	their machinery is being used here now in Quebec, for
20	example.
21	Q. If in Ontario there were a move
22	towards smaller cut sizes, in your view would it be
23	possible for the industry to adapt the technology for
24	smaller cut sizes or, for example, utilize some of the

Swedish or Finnish technology?

25

1	A. Well, any industry that's competitive
2	has to adapt and I think the Ontario industry can adapt
3	as well as any.
4	MR. MARTEL: Can I raise a couple of
5	questions then on that.
6	Two things. First of all, what's the
7	difference in the amount of volume being taken out in
8	Sweden and Finland as opposed to what we take out in
9	northern Ontario? Do you have any idea what those
10	comparisons are?
11	THE WITNESS: Of the total volume per
12	year?
13	MR. MARTEL: Are they taking a lot less
14	out in Sweden and Finland than we are here?
15	The other thing I wanted to ask in the
16	same area, but totally different, is using the
17	modern the machinery we are using today in Ontario,
18	would that prevent a move to, for example, strip
19	cutting in the fashion that we saw last week or the
20.	week before?
21	In other words, is it possible to move
22	away from clearcut without a lot of costly equipment
23	being bought?
24	MS. SWENARCHUK: Q. The first question
25	had to do with volume.

1	MR. MARTEL: Yes. A comparison they are
2	using. I looked at the size of the cuts, they are very
3	much smaller per hectare or per area, but what's the
4	overall volume?
5	MS. SWENARCHUK: Could I draw your
6	attention to one matter that's reported in the article,
7	Mr. Martel?
8	MR. FREIDIN: Well
9	MS. SWENARCHUK: This is not volume but
0	area.
1	MR. FREIDIN: Madam Chair, I would like
.2	the answer from the witness and not have the
.3	interpretation of an article from Ms. Swenarchuk.
. 4	MS. SWENARCHUK: Mr. Martel, would you
.5	like me to direct you to the this is not volume but
.6	area, however.
.7	This is on page 123 and the author writes
.8	in the second full paragraph just above the drawings or
.9	the right-hand side, that each year a good 200,000
0	hectares are felled.
!1	So that's at least the area of the annual
2	cut in Sweden according to Rimrod.
13	Q. Now, with regard to volume, Mr.
4	Benson, would you proceed with Mr. Martel's question.
5	A Sure I don't have the absolute

- figures. I could certainly look them up and find them
- for you, a comparison between Finland, Sweden and
- 3 Ontario if you like.
- 4 MR. MARTEL: I am not sure if it has any
- 5 relationship. I look at the size -- I guess what I am
- 6 wondering is, if you look at the size of the clearcuts
- 7 on federal land it is 16.7 hectares, if you look at
- 8 private it is 2.5 and then you have to ask yourself:
- 9 Well, are they taking a lot less off and, therefore,
- can do it than we take off the land annually in Ontario
- or are they taking more off, or just how does this fit
- in in a comparative way with what we are doing in the
- 13 total volume in Ontario?
- 14 THE WITNESS: There's two factors there
- that are different. First, the yield per hectare,
- average yield per hectare is somewhat higher than what
- it is in Canada. You could get a rough idea of that by
- dividing the average volume per site by the area, and
- 19 you would see that it would come out somewhat higher
- 20 per hectare than what it is for our sites, and that's
- 21 really not their total volume because they take out
- volume for thinnings also, so this wouldn't give you
- the total volume. So their yields per hectare are
- 24 higher for a start.
- Secondly, their stumpages are quite a bit

1	higher than what our stumpages are. I don't know what
2	the stumpage rates are in Sweden right now. The ones
3	in Finland I believe range from about \$60 to \$125 a
4	cubic metre depending upon species and product.

Now, relative to Ontario, I think the present rate is around \$7.00, \$7.20 per cubic meter. So for a private land owner, you have a higher yield and you have a higher dollar return for the wood that you are producing. So they are operating under a different system.

It also makes it a little more easy to justify silviculture there. When you are getting such a large return, you can certainly afford to spend more on the land.

MR. MARTEL: Yes, but I was watching a documentary just last week and it said where they take this material off and they scarify every foot of it, that in fact the amount of flora and fauna that wasn't there was quite amazing and they are starting to worry in Sweden about the effects of such an agricultural process because it doesn't bring the forest back to what it was originally. They is far too much missing. They are quite worried about it.

I don't know if anybody has seen that.

It was certainly worthwhile watching. It was from a

1 Detroit channel, a scientific documentary on forestry 2 around the world and one of the examples was Sweden, 3 and they're concerned that they only have one per cent 4 of the forest left that's original or virgin forest and 5 that in many of the plantations there is no wildlife or 6 anything. They're very concerned. 7 THE WITNESS: I missed that documentary. 8 These processes change over time. Sweden was into more 9 natural regeneration at one time and then switched to more intensive management. They may have to switch 10 11 back again. 12 I was in Finland a few years ago and it was interesting at that time, people were upset with 13 14 the harvesting occurring in Finland and the large size of the clearcuts there which were really quite small by 15 16 our standards. These things change over time as you 17 get more information about the area. Overall, the cuts 18 in Sweden are much smaller than what we have. 19 I would be interested to see that 20

I would be interested to see that

particular documentary. I do know for moose in Sweden

they produce an extraordinary high amount of moose

compared to Ontario for the same area, and I am not too

sure exactly how they do that, but certainly part of it

must be linked to the way they manage the forest area.

21

22

23

24

25

The other part of your question was with

1	the machinery
2	MR. MARTEL: Could we move how costly
3	would it be to move from the large clearcuts, 130
4	hectares, let's say?
5	If one said: Well, we are going to limit
6	it to a hundred from now on, just using Forests for
7	Tomorrow, how would that affect Industry, the machinery
8	they now have? Could they still utilize it without
9	incurring a lot of costs in trying to renew all of the
10	equipment?
11	THE WITNESS: I really haven't worked out
12	the costing for that and I really couldn't give you a
13	truthful answer.
14	MR. MARTEL: No, could they use the same
15	equipment?
16	THE WITNESS: I think in many cases they
17	could use the same equipment, particularly the
18	equipment that can reach out and pick up trees. They
19	are just going out and taking a swath anyway. It is
20	just a matter of moving over another row or two before
21	they take out another swath of timber.
22	One of the critical factors would be the
23	turning radius of some of the machinery which might be
24	a bit high for some of the larger equipment.
25	MADAM CHAIR: Mr. Benson, do you think

1	that any cost involved in the transformation, for
2	example, to a different type of equipment, do you think
3	that sort of cost should be factored into estimates
4	about the differences in cost between intensive and
5	extensive management?
6	THE WITNESS: No. I suppose it depends
7	how you approach it. Equipment doesn't live forever
8	and you could factor it in that way, that when it is
9	replaced it is replaced to favour more extensive
10	management, if you are looking at a fair type of
11	arrangement.
12	MS. SWENARCHUK: Q. When you advocate a
13	greater use of smaller clearcut sizes and natural
14	regeneration techniques, Mr. Benson, do you foresee in
15	the change to that process a need for a wholesale
16	change in equipment by the Industry within a short
17	period of time?
18	A. It's difficult to answer for all
19	areas and it would depend upon the equipment for all
20	areas. I think in the majority of the areas it should
21	be fairly easy to make the change without changing the
22	equipment at the present time.
23	Q. Just one more question related to the
24	Rimrod article. Looking at page 126 and the second
25	paragraph in the right-hand column:

1	"When it comes to clearcuttings there are
2	regulations governing their size and
3	shape. The felling volume must be
4	permitted to be so large that it affords
5	a sound basis for rationale felling. The
6	maximum permissible area has not been
7	precisely defined, but frequently used
8	guide values are 25 to 40 hectares.
9	Allowance must be made for the state of
10	the forest and for the need of access to
11	storm proof and other natural boundaries.
12	New clearcuttings adjacent to old ones
13	are to be avoided until the new planted
14	forest is clearly visible."
15	Now, is it your view that those types of
16	regulations with modifications for Ontario conditions
17	could be useful in the Ontario forest practice?
18	A. I think for managing for all
19	resources, yes, you do have to move that way.
20	Q. Turning back to page 111, -12 and -13
21	of your witness statement now, Mr. Benson, I understand
22	that you have been able to obtain information with
23	regard to cut sizes in other provinces of Canada and
24	some information in Finnish with regard to Finland and
25	I will ask that we file those now.

1	I think it might be easiest, Madam Chair,
2	if we file the five pieces of data and attach witness
3	statements to them and then, as I indicated, I will
4	provide you with a list describing them and then we can
5	go through them one by one.
6	This is the Finnish example.
7	MADAM CHAIR: Are these separate exhibit
8	numbers?
9	MS. SWENARCHUK: I think so, yes, please.
10	MADAM CHAIR: The first one will be
11	Exhibit 1613.
12	MS. SWENARCHUK: 1613, Madam Chair?
13	MADAM CHAIR: Yes. Would you please
14	describe this exhibit?
15	MR. MARTEL: I had a little difficulty
16	reading this last night.
17	MADAM CHAIR: Mr. Martel said he can
18	swear in Finnish, but that's as far as his ability
19	goes.
20	MS. SWENARCHUK: Could we ask Mr. Benson
21	to describe it after we have handed them all out?
22	MADAM CHAIR: All right.
23	EXHIBIT NO. 1613: One-page document re average size
24	of cuts in Finland according to the different categories.
25	MS. SWENARCHUK: The next one has to do
23	no. Swinkhounk: The next one has to do

1	with Manitoba. This will be 1614 then.
2	MADAM CHAIR: That's right.
3	EXHIBIT NO. 1614: One-page document entitled Manitoba Forestry Branch Circular
4	re forestry cut block guidelines.
5	MS. SWENARCHUK: And next New Brunswick
6	MS. SWENARCHUK: 1615.
7	MADAM CHAIR: That's right.
8	EXHIBIT NO. 1615: One-page document re New Brunswick's clearcuts on
9	provincial forest lands.
10	MS. SWENARCHUK: And Saskatchewan, 1616?
11	MADAM CHAIR: That's right. And the
12	latest from British Columbia, 1617. (handed)
13	MADAM CHAIR: Thank you.
14	EXHIBIT NO. 1616: One-page document re Saskatchewan's restrictions on
15	clearcut harvesting.
16	DVIITDIM NO. 1617. Mare none decument no Duitiet
17	EXHIBIT NO. 1617: Two-page document re British Columbia's clearcutting and
18	harvesting practices.
19	MS. SWENARCHUK: We have now produced the
20	American Forest Service Standards. Madam Chair, Mr.
21	Martel, you recall those were filed as Exhibit 427
22	during the Ministry's Panel 9 evidence.
23	MADAM CHAIR: Thank you.
24	MS. SWENARCHUK: Q. Now, Mr. Benson, I
25	would just ask you to proceed through the exhibits and

1 describe each one and the clearcut limits that are 2 attached to them or part of them. 3 The first one that the Board would like you to explain is the Finnish one, please. What is 4 5 this exhibit and what does it represent? 6 Well, it is a question --Α. 7 Q. Excuse me. Could you use the 8 microphone. 9 What it does is give the average size 10 of cuts in Finland according to the different 11 categories and the limits are written in English, that's my handwriting about midway down the page, and 12 13 the translation of my writing is degree days equal ro 14 800, the size would be 30 hectares and that would apply 15 to southern Finland. 16 What is a degree day, Mr. Benson? 17 A degree growing day refers -- I 18 don't know the actual definition of it, but it has to 19 do with the hours of sunlight that you have available 20 for plants to grow. 21 Fine. So then you said the 30 22 hectare is -- it says a clearcut size limit? 23 A. In southern Finland. 24 MADAM CHAIR: What's the 800, Mr. Benson? 25 THE WITNESS: I'm sorry?

1	MADAM CHAIR: What is 800 in front of the
2	30?
3	THE WITNESS: That refers to the number
4	of degree growing days.
5	MADAM CHAIR: I see. All right. So the
6	clearcut size limit is 30 hectares in southern Finland?
7	THE WITNESS: Right.
8	MS. SWENARCHUK: Q. Go ahead, Mr.
9	Benson.
10	A. Whereas in northern Finland the
.1	degree of growing days is equal to 650. The size of
.2	the clearcuts are limited to 10 hectares in size.
13	Q. And the writing further down the
L 4	page, Mr. Benson?
1.5	A. The writing at the bottom of the
1.6	page, the column of numbers there near the bottom of
L7	the page is my colleague Reino Pulkki and he translated
18	these for me, in addition to the other part. He did
L9	the writing in this particular case.
20	The numbers there, the first number, the
21	13 hectares refers to the average size of the first
22	commercial thinning. Reino wrote down the two large
23	he felt that size was really too large.
24	MADAM CHAIR: Excuse me. Who is Renio

25

Pulkki?

1 THE WITNESS: He is a colleague of mine 2 at Lakehead University. He teaches forest harvesting. 3 MADAM CHAIR: Thank you. MS. SWENARCHUK: Q. Could you describe 5 what exactly that means, 13 hectares for a first 6 commercial thinning? 7 That would be the average size of an 8 area that they go in and commercially thin. 9 0. All right. Proceed. 10 Α. Eleven hectares would be the average 11 size for other thinnings that take place, 7 hectares 12 where they are using seed trees and seed tree removal. 13 Seed tree would be for natural regeneration. 11 14 hectares for shelterwood tree removals, 11 hectares for 15 pulpwood harvest. That would really be a clearcut type 16 of area -- well, it's bracketed at the end of that 17 statement there, clearcut. And 11 hectares for mid-size tree removals and 5 hectares for the large 18 19 sawlog removals. 20 MADAM CHAIR: Mr. Benson, what is the 30 21 hectares for then? What kind of harvesting is left 22 over after --23 THE WITNESS: The 30 hectares is the 24 limit. 25 MADAM CHAIR: So that there would be

exceptions to these numbers that you have just gone 1 through, but that exception couldn't be larger than 30? 2 THE WITNESS: That's right. Those are 3 4 average figures. MS. SWENARCHUK: Q. And the last 5 6 indeciperable line. It says something about large 7 sawlog removals. I'm not sure too sure what the first 8 word is, but if I recall it had to do that 80 per cent 9 10 of the volume really comes from the last cut in the 11 sawlog removal. So the 20 per cent of the harvest 12 would come from the thinnings prior to the final 13 harvest. 14 These figures date from what year, 0. 15 Mr. Benson? 16 Α. Those for this year, 1990. 17 And Mr. Rummukainen who sent this 0. 18 telex, who is he? 19 A. He is the acting professor, 20 Department of Logging and Utilization of Forest 21 Products, University of Helsinki. 22 MADAM CHAIR: Mr. Benson, is the Swedish 23 forestry industry comparable to Ontario in that more 24 timber is produced for pulp and paper than for lumber

25

or sawlogs?

1	MS. SWENARCHUK: Swedish or Finnish,
2	Madam Chair?
3	MADAM CHAIR: Finnish, rather, I'm sorry.
4	THE WITNESS: Yes. The Finns produce
5	both really, but would produce more pulp. Again, I
6	don't know the exact figures.
7	The conditions are somewhat different.
8	For example, one of their highest valued species is
9	birch because it's the hardwood species there that is
10	best for lumber, whereas in our country we don't really
11	consider birch to the same extent.
12	MS. SWENARCHUK: Q. Do you have any
13	information about the approximate portion of their
14	harvest that is conifer?
15	A. I'm sorry?
16	Q. Do you have any idea what the
17	approximate proportion of harvest is that is conifer in
18	Finland?
19	A. I couldn't give you that offhand, no.
20	The majority of it would be conifer, though.
21	Q. Do you have any other comments you
22	want to make from this exhibit?
23	A. No.
24	Q. Can we turn then
25	MADAM CHAIR: Ms. Swenarchuk, perhaps for

1	the record we would note that Exhibits 1613 through
2	1616 comprise one page, Exhibit 1617 has two pages.
3	MS. SWENARCHUK: Q. Can we turn then to
4	Exhibit 1614, Mr. Benson. Could you describe what this
5	is and how it relates to cut sizes?
6	A. I missed the number. Which is 1614?
7	Q. This is the Manitoba Forestry Branch
8	Circular.
9	A. I requested from different provinces
10	as a check on just what are the size of clearcuts they
11	are using across Canada and these are some of the
12	responses I got from the provinces.
13	In Manitoba, the last paragraph really
14	summarizes the situation where they state that:
15	"The optimum size would approximate 100
16	hectares, but upon approval by the
17	Director of the Forestry Branch may
18	exceed these limits."
19	And they do say, too, that:
20	"The size limits for clearcut blocks can
21	be a management tool and vary according
22	to the management prescription for the
23	forested stand to be harvested and the
24	topography."
25	MADAM CHAIR: Excuse me, Mr. Benson. How

large is the forest industry in Manitoba? Is it a very 1 2 significant size? 3 We don't have any evidence on that before 4 the Board. 5 THE WITNESS: No, again, I could get that 6 information for you after the coffee break if that's... 7 MADAM CHAIR: Thank you. 8 MS. SWENARCHUK: You could provide it in 9 January if you wish, Mr. Benson. 10 MADAM CHAIR: Yes, we can wait until the 11 new year. 12 THE WITNESS: I think I have it in my brief case and if I can leave it behind I would like 13 14 to. 15 MADAM CHAIR: Good. 16 MS. SWENARCHUK: Q. Exhibit 1615 is from New Brunswick and could you review this, please, for 17 18 the Board, Mr. Benson? 19 Α. In this letter they note in the 20 quoted part that the first sentence of the quote is 21 that: 22 "The clearcuts will normally be limited 23 to 125 hectares, but that it can be 24 modified by the regional director 25 depending upon the degree of damaged wood

1		and stand maturity."
2		Q. Could you read the next two sentences
3	into the reco	rd, please, Mr. Benson?
4		A. "Based on site specific and general
5		wildlife habitat considerations, natural
6		boundary features and the proximity to
7		adjacent clearcuts, the regional resource
8		manager may require smaller cuts.
9		The size of harvest block left between
10		cut-over areas shall be large enough to
11		be economically harvested and shall not
.2		be cut until the regeneration on the
13		adjacent cut-overs has reached its
. 4		five-year regeneration standard, 75 per
. 5		cent minimum stocking of all planted and
. 6		natural softwood species to an average
.7		minimum height of one meter."
.8		Q. And the next two sentences as well,
.9	please.	
20		A. The next two sentences deal with the
21	average size.	
22		"On average, approximately 785 clearcut
23		blocks are harvested annually on New
24		Brunswick Crown lands with an average
.5		actual block size of 49 hectares. Far

_	ress than 125 nectare maximum size.
2	Q. And just the next sentence.
3	A. "The smaller size cut block is due to
4	limitations imposed by a forest stand
5	composition, wildlife habitat, watershed
6	protection, topography and operational
7	considerations."
8	Q. Is the forestry industry an important
9	part of the economy of New Brunswick, Mr. Benson?
10	A. It's an important industry there,
11	yes.
12	Q. Did you want to make any other
13	comments on the New Brunswick figures?
14	A. No.
15	Q. Could we move on then to Exhibit 1616
16	which is the Saskatchewan information. Finally my home
17	province.
18	A. In the first paragraph of the
19	Saskatchewan letter they state in the second sentence:
20	"The policy currently employed restricts
21	the size of pure to softwood clearcuts to
22	40 hectares and pure hardwood cut-overs
23	to 120 hectares. Cut-overs in mixed wood
24	stands vary depending on the dominant
25	species association targeted for
	-

harvest." 1 They go on to say in the second paragraph 2 3 that: "Clearcut restrictions are commonly 4 imposed to promote natural regeneration 5 and wildlife values. Forest management 6 7 applications such as immediate... removal... "or voluntary access closure 8 9 allow a department to be flexible with 10 respect to clearcut sizes. Saskatchewan 11 promotes a cut and leave harvest program 12 requiring a 30 to 50 per cent leave in 13 typical harvest areas. Leave block 14 harvesting is permissible once 15 regenerating cut-overs reach two metres 16 high in softwood and five metres high in 17 hardwood. This recovery of regenerating 18 forests may take between 5 and 15 years 19 depending on the species reforested and 20 the silvicultural prescription applied." 21 And they have a definition of clearcut: 22 "Clearcut is defined as an area which 23 after harvesting has a crown cover of 24 less than 10 per cent either as a result 25 of a single harvest operation or a number

1	or subsequent narvests spread over a
2	number of years."
3	Q. Just one correction there. Mr.
4	Benson, when you read the second paragraph I believe
5	the word in the third line is "immediate renewal" as
6	opposed to, I believe you read, "removal" for the
7	record.
8	MADAM CHAIR: Again, Mr. Benson, do you
9	have any information on whether forestry figures
10	prominently in Saskatchewan?
11	THE WITNESS: It is becoming larger in
12	Saskatchewan. It's not the largest industry, but it
13	certainly is important in Saskatchewan, particularly in
L 4	the north of Saskatchewan.
1.5	MS. SWENARCHUK: Q. And Exhibit 1617,
L6	Mr. Benson, with regard to British Columbia, you have
L7	indicated in the witness statement at page 111 that
18	British Columbia has clearcuts that range between 20 to
L9	80 hectares in size. Could you indicate what this
20	report mentions?
21	A. Well, I wasn't able to get it
22	clarified as to whether it was correct or not, but they
23	did say that in the second paragraph:
24	"As you may know, British Columbia is a
25	very diverse province, both ecologically

1	and geographically. The Ministry of
2	Forests reflects this diversity by being
3	decentralized into six distinct forest
4	regions. Each region has the
5	responsibility to develop and enforce
6	clearcutting and harvesting guidelines
7	which are specifically suited to the
8	local forest and ecological zones.
9	The result, clearcutting guidelines and
10	restrictions are varied and localized
11	throughout the province."
12	In addition, the other point that I think
13	is important from the letter is the second last
14	paragraph on page 2 where they state that:
15	"Recently, senior officials of the
16	Ministry of Forests have initiated a
17	process to review, coordinate and update
18	where necessary all clearcutting and
19	harvesting guidelines. This would
20	include cut block size, green-up period
21	prior to harvesting adjacent areas,
22	landscape and aesthetics management, road
23	building standards, rehabilitation of
24	disturbed areas and any others issue
25	which would improve forest management.

1	This process is currently in progress but
2	the results will not be finalized until
3	some time in 1991."
4	MADAM CHAIR: So, in effect, they have no
5	limits on the size of clearcuts?
6	THE WITNESS: Not that they stated in
7	this letter. I believe they have limits or
8	prescriptions, but I don't know exactly what they are
9	for those six different regions that they have.
.0	MS. SWENARCHUK: Q. Can you provide
.1	anymore information with regard to the prescriptions of
. 2	which you have knowledge, Mr. Benson?
.3	A. For B.C.? No, I can't because you
. 4	hear various and read various reports from there and I
.5	really can't clarify the issue at all.
.6	I think the second last paragraph,
.7	though, states some of the particular problems and the
.8	fact that the whole issue of clearcutting and
.9	harvesting guidelines are under review in that province
20	and and they are trying to revise them.
21	MR. MARTEL: Wouldn't you believe that he
!2	was skating from this letter all over the ballpark?
!3	I have seen weasle words before, but I
14	mean, he doesn't commit himself to anything here. He
:5	doesn't tell you what is allowed in any of the six

- areas. I mean, it seems to me that there wasn't much 1 2 effort to deal with the issue. Maybe I am being blunt, 3 but there is nothing there. 4 THE WITNESS: No, he didn't answer the 5 question. I think because mainly it's the problem in that province at the present time and they are having 6 trouble dealing with it. 7 8 MADAM CHAIR: Ms. Swenarchuk, would you 9 remind the Board where to find the data on clearcut 10 limits for Quebec? We have that before us. 11 MS. SWENARCHUK: Yes, if my friends at 12 the back of the room won't object, I would be happy to 13 identify it for you. It's in the source book, Volume 14 II -- actually, I think it might be beside the Rimrod 15 article in yours which seemed to be changed from our 16 original. 17 MADAM CHAIR: Yes. Here it is. I have 18 got it. 19 MS. SWENARCHUK: I think the relevant
- MS. SWENARCHUK: I think the relevant

 section this is filed in our source book simply under

 Quebec on page 30 of the excerpt at paragraph 1.2.12.

 My reading of that suggests --
- MADAM CHAIR: We have only pages 21 to 23.
- MS. SWENARCHUK: We found it last night.

- 1 No, this is not -- the article that I am speaking of 2 is in French. 3 MADAM CHAIR: All right. For the parties, we are looking at source book ... 4 5 MS. SWENARCHUK: Volume II. 6 MADAM CHAIR: Volume II, Exhibit 1605B 7 and there is an article --8 MS. SWENARCHUK: Immediately after the 9 Pitts article is one that we have simply tabbed as 10 Quebec, and I won't read it into the record since we 11 don't have a French transcriber here, but I believe the 12 Board can see the relevant figures at 1.2.12. 13 MADAM CHAIR: It appears to be a limit 14 involving a range of 150 to 250 hectares. 15 MS. SWENARCHUK: Right. 16 Q. And the source book also. Did you want to make any comment on the Quebec situation, Mr. 17 Benson? 18 19 Well, I think the other two points 20 are that the distance between clearcut areas that are left standing, depending upon the size of the clearcut, 21 22 if a clearcut is less than 50 hectares, the wood left
 - If it is greater than 150 hectares, it should be 100 metres wide, and the last sentence says

between clearcut areas must be 60 metres wide.

23

24

25

1	that:	
2		"These blocks left in between are to be
3		left in tack until the regeneration has
4		attained a height of at least two
5		metres."
6		Q. And in Volume I of the source book,
7	of our source	book, you have included some information
8	from Alberta;	have you not, Mr. Benson?
9		I believe that's the first article in
10	Volume 1 of th	ne source book and it is entitled, Madam
11	Chair, Alberta	Timber Harvest Planning and Operating
12	Groundrules.	
13		MS. SWENARCHUK: Q. Now, Mr. Benson,
L 4	could you desc	cribe what this document represents and
15	what it says a	about clearcut regulations in Alberta,
1.6	please?	
17		A. Well, starting on page No. 21, the
18	last paragraph	there under Section 4.2.6, block size.
.9		"Block size, width and shape should be
20		determined by regeneration and
?1		silvicultural requirement of species
22		being managed and by consideration for
23		aesthetic, watershed and wildlife. Size
4		and shape of cut blocks are expected to
5		vary to fit the terrain and stand types.

1	The micro-climate of the proposed
2	cut-over must also be considered and
3	special measures shall be taken where the
4	need to conserve soil moisture is
5	identified."
6	And on the second page No. 22, they give
7	the criteria for the different cut sizes according to
8	the type of forest area.
9	For pine blocks where 40 per cent or more
10	of the merchantable timber volume is in pine, is laid
11	out for pine standard, the cut blocks shall average no
12	more than 60 hectares, but may vary up to 100 hectares
13	in size.
14	Deciduous blocks, the same as for pine
15	blocks. The spruce blocks may be laid out in patches
16	to a maximum of 24 hectares, strips to a maximum of 32
17	hectares where no part of the cut-over is further than
18	150 metres from a seed source or blocks to the
19	dimension specified for pine stands where timber
20	operator who has the responsibility for reforestation
21	makes a formal written commitment to treat and plant
22	the cut-over within 24 months of harvesting.
23	Q. And I think in fairness to complete
24	the prescription, could you either read or summarize
25	the provisions of paragraphs 5 and 6, please?

_	A. Harvesting proposars, this is
2	paragraph 5 or point 5:
3	"Harvesting proposals that exceed
4	groundrule limits must be supported with
5	documentation based on stand and site
6	assessments and shall be referred to the
7	timber management branch for approval.
8	Such proposals must demonstrate that
9	potential harmful impacts on soils,
10	watershed, wildlife, aesthetics and other
11	values are or will be mitigated and must
12	also include an acceptable plan for
13	reforestation appropriate for the site
14	conditions."
15	Point No. 6:
16	"Cut blocks in previous selectively cut
17	stands which are satisfactorily stocked
18	conifers two metres or more in height may
19	exceed the size constraints provided and
20	an acceptable logging plan is submitted
21	which shows that the minimum stocking
22	level will be maintained with good
23	quality conifers. If the regeneration
24	stocking cannot be
25	maintained at the time of harvest the

1	appropriate alternate cut and leave
2	system will be employed in the layout."
3	Q. Do you want to add any further
4	comments with regard to the Alberta situation?
5	A. No, I don't think so. I think that
6	basically says what it is there.
7	Q. Now, you have referred as well in
8	your witness statement to Nova Scotia on page 112. You
9	have indicated that clearcuts in Nova Scotia are
. 0	limited to 50 hectares in size.
.1	I understand you have some information on
. 2	that which we didn't copy and will if you could just
.3	indicate for the Board what it is, please.
4	A. The response I got from Nova Scotia,
.5	they didn't answer in the letter, instead they sent
.6	their Forest Wildlife Guidelines and Standards for Nova
.7	Scotia. On page 6 of it they state in the first point
.8	for the guidelines:
.9	"Areas to be clearcut should not exceed
20	50 hectares (125 acres). Smaller cuts
21	made more often would provide a better
2	distribution of the shrub saplings
!3	successional stage. Where it is
:4	necessary because of insects, disease,
!5	blowdown and/or extensive old growth

1	stands to cut large areas leave corridors
2	for wildlife."
3	MS. SWENARCHUK: Madam Chair, could I
4	suggest we make that Exhibit 1618 and we will copy the
5	cover page and the page that Mr. Benson just read for
6	the parties at the break.
7	MS. SEABORN: Could we have a copy, Madam
8	Chair, of the whole document made available?
9	MS. SWENARCHUK: Yes.
10	MADAM CHAIR: Could you please give us
11	the title of that document again, Mr. Benson.
12	THE WITNESS: Yes. It is called Forest
13	Wildlife Guidelines and Standards for Nova Scotia.
14	MADAM CHAIR: And the author is the
15	THE WITNESS: The Department of Lands and
16	Forests, Nova Scotia.
17	MADAM CHAIR: And the year?
18	THE WITNESS: It is not stated. However,
19	there are some diagrams in it dated '88, so presumably
20	it is after that date.
21	MADAM CHAIR: How many pages in that
22	document?
23	THE WITNESS: 19 pages.
24	MADAM CHAIR: Thank you.
25	

1	EXHIBIT NO.		-			
2			Forest Wil Standards	for Nov	a Scotia,	
3			authored b	s, Nova	Scotia,	Lands
4			consisting	01 19	pages.	
5	MS	S. SWEN	ARCHUK: I	am goi	ng to mov	e on to
6	another subject	area,	Madam Chai	r. Did	you want	to
7	take the break i	now or	10:30? I	don't r	ecall.	
8	MA	ADAM CH	AIR: We c	an brea	k now, Ms	•
9	Swenarchuk. It	it con	venient?			
10	MS	S. SWEN	ARCHUK: A	s you w	ish.	
11	M	ADAM CH	AIR: We w	ill tak	e our mor	ning
12	break now.					
13	Recess taken	at 10:	15 a.m.			
14	On resuming a	at 10:4	0 a.m.			
15	M	ADAM CH	AIR: Plea	se be s	eated.	
16	MS	s. SWEN	ARCHUK: W	le have	three top	ics to
17	complete from the	his mor	ning, Mada	m Chair	. The fi	rst is
18	harvest volumes	from S	weden and	Finland	•	
19	М	r. Bens	on would 1	ike to	do that n	.OW.
20	TI	HE WITN	ESS: I do	have s	ome figur	es
21	regarding that	from Fo	restry Fac	ts from	federal	
22	government, for	estry C	anada, rev	ised Ma	y, 1990.	
23	Iı	n this	document t	hey do	give the	
24	production of fo	orest p	roducts fo	r 1988	from Swed	en,
25	including rounds	wood, s	oftwood lu	ımber an	d wood ba	se

- 1 panels and would total roughly 54 million cubic metres. MS. SWENARCHUK: Q. Now, how does that 2 3 compare to the Ontario harvest, do you know, Mr. Benson? 4 5 A. I will give it for Finland first 6 here. For Finland it is roughly 47 million cubic 7 metres. In comparison to Ontario, the annual harvested listed was 30.2 million cubic metres. So both Sweden 8 9 and Finland are slightly ahead of Ontario in terms of 10 volume. 11 Q. Now --12 Again, I think that's partly a 13 reflection of their more productive land in that 14 particular case. They can produce more per hectare 15 than we can. 16 MR. CASSIDY: Perhaps what we can do, Ms. 17 Swenarchuk, is simply have a copy made of the relevant 18 portions of this document. 19 MS. SWENARCHUK: I think Mr. Benson is 20 happy to give this document to the Board. Is that 21 correct? 22 THE WITNESS: Yes. 23 MS. SWENARCHUK: So presumably it will 24 be...
 - MADAM CHAIR: We will make that an Farr & Associates Reporting, Inc.

25

1 exhibit. That will be Exhibit 1619. Could you 2 describe it again, Ms. Swenarchuk? 3 MS. SWENARCHUK: It is a document 4 entitled Forestry Facts, Revised May 1990, published by Forestry Canada and it's 87 pages long. 5 6 MADAM CHAIR: And it is a booklet? 7 MS. SWENARCHUK: It is a booklet. 8 ---EXHIBIT NO. 1619: Booklet entitled Forestry Facts, Revised May 1990, published by 9 Forestry Canada. 10 MR. CASSIDY: Sorry, could you indicate, 11 Ms. Swenarchuk, what pages Mr. Benson was reading from 12 so we are clear. 13 MS. SWENARCHUK: The figures with regard 14 to Sweden and Finland are on page 5 and the Ontario 15 figure is page 64. 16 MR. CASSIDY: Thank you. 17 MS. SWENARCHUK: You wanted copies of 18 those pages? 19 MR. CASSIDY: Thank you. 20 MS. SWENARCHUK: With regard to the Nova 21 Scotia report that was filed earlier, which I believe 22 is Exhibit 1618, we now have copies of pages of the 23 cover page and page 6. I will pass this out in a 24 moment. 25 We have also copied the complete document

1	and we will file that with the Board for counsel to
2	examine. So I request that that become exhibit
3	MR. MARTEL: 1618, wasn't it?
4	MR. CASSIDY: It already is.
5	MADAM CHAIR: Yes. Do you want the
6	excerpts to be 1618 and the entire document to be
7	1618B?
8	MS. SWENARCHUK: Sure.
9	EXHIBIT NO. 1618B: Document entitled Forest Wildlife Guidelines and Standards
10	for Nova Scotia, authored by the Department of Lands and Forests.
11	beparement of bands and forests.
12	MS. SWENARCHUK: While we are on the
13	topic of Nova Scotia, Mr. Benson also received a letter
14	from the Department of Lands and Forests and I would
15	ask that this be 1618C.
16	MADAM CHAIR: This is a two-page letter
17	dated October 31st, 1990 addressed to Mr. Benson from
18	Mr. Eidt, Director of Forest Management, Crown Lands.
19	
20	EXHIBIT NO. 1618C: Two-page letter dated October 31st, 1990 addressed to Mr.
21	Benson from Mr. Eidt, Director of Forest Management Crown Lands.
22	Torest Management Crown Lands.
23	MS. SWENARCHUK: Q. Now, Mr. Benson
24	could you refer the Board to the first paragraph of
25	this letter dated October 31st, 1990 and its relevance

1	to the cut si	zes that we saw earlier?
2		A. Well, in the first paragraph they are
3	just stating	what their particular guidelines are in
4	the second ser	ntence they say:
5		"Specifications and restrictions are
6		contained in the guidelines on page six
7		and under Edges and Wildlife Corridors;
8		Special Management zones and Cavity
9		Trees, Snags and Downed Trees. Please
10		note that the diagram in connection with
11		the Special Management Zones is
12		inaccurate in that it does not exactly
13		reflect the SMZ guidelines. Deer
14		Wintering Areas, Birds of Prey, Heron
15		Colonies and other Legislation and
16		Policy such as special places, park
17		reserve, parks, demonstration areas,
18		scenic areas and game sanctuaries
19		may prohibit or warrant the placement of
20		additional restrictions on a particular
21		clearcut at the time of approval."
22		Q. Thank you. I believe you also wanted
23	to assist the	Board with regard to Finnish harvesting
24	equipment?	
25		A. Yes, I do have another manual I am

1	willing to donate and this is a manual entitled Logging
2	Technology from Finland. They held seminars recently
3	in North America, one in Thunder Bay on November 12th
4	and in this manual they are well, basically they are
5	trying to sell their equipment, but it does give you an
6	indication that they have developed different types of
7	equipment for smaller harvesting operations and also
8	they have more concern for the environment, as they
9	stress it, in the way their equipment can handle
10	harvesting with a minimum amount of disturbance to the
11	area.
12	There are a few pages marked in this to
13	give you an indication of some of type of machinery
14	that they have for harevsting operations or thinning
15	operations or both.
16	MADAM CHAIR: Is that a document in
17	English, Mr. Benson?
18	THE WITNESS: Yes.
19	MADAM CHAIR: Are we going to make that
20	an exhibit, Ms. Swenarchuk?
21	MS. SWENARCHUK: This will be Exhibit
22	1621 then.
23	MADAM CHAIR: 1620.
24	MS. SWENARCHUK: Yes.
25	MADAM CHAIR: Give me the title of the

1	document again, please.
2	THE WITNESS: The title is Logging
3	Technology from Finland.
4	MADAM CHAIR: The author?
5	THE WITNESS: The authors really comprise
6	the industries involved. I could give you the first
7	one. It is called Farmi-Normit, F-a-r-m-i-N-o-r-m-i-t.
8	Would that be
9	MADAM CHAIR: That's fine. And the date
10	on that document is?
11	THE WITNESS: For Thunder Bay it was
12	November 12th, 1990.
13	MADAM CHAIR: Are we entering just the
14	one document, Ms. Swenarchuk?
15	MS. SWENARCHUK: Yes, Mr. Benson is happy
16	to give you the whole binder.
17	MADAM CHAIR: All right. Do we want the
18	whole binder?
19	MS. SWENARCHUK: I think that it probably
20	gives about as comprehensive a picture as we have of
21	what logging technology developments are in Finland.
22	MADAM CHAIR: All right.
23	MS. SWENARCHUK: And it is very current.
24	MADAM CHAIR: All right. Thank you.
25	MS. SWENARCHUK: Mr. Benson is obviously

T	rightening his ruggage for the trip home. (handed)
2	MADAM CHAIR: Thank you very much.
3	EXHIBIT NO. 1620: Binder entitled Logging
4	Technology from Finland.
5	MADAM CHAIR: Please continue.
6	MS. SWENARCHUK: Q. We will be returning
7	to the question of clearcut size and effects in this
8	case pertaining to Ontario when we deal with Volume II
9	of Mr. Benson's witness statement.
10	We are going to now complete a brief
11	review of remaining sections in Chapter 7 of Volume I
12	and we will omit the sections discussing environmental
13	effects on which the Board has already heard
14	considerable evidence.
15	Q. I would simply ask you, Mr. Benson,
16	to please turn now to page 119 of your witness
17	statement.
18	Between pages 119 and 122 you discuss the
19	effects of wind on the forest and the environmental
20	effects of wind, and I wonder if you could just briefly
21 .	summarize your comments regarding the environmental
22	effects of wind on forest and the implications from
23	those effects for harvesting?
24	A. Well, wind can certainly play a part
25	in what happens to the forest and what damage occurs to

L	the for	rest.	The	way	you	ı mar	nage	the	harves	st of	a	forest
2	by the	shape	of	the	cut	can	dete	ermin	e just	: wha	at	that
3	effect	may be	a .									

In the general concepts involved there concern the shape of the clearcut, with the funnel of wind in a certain direction to cause it to cause more damage, and also the other important part relates to the wind velocity, particularly with respect to the size of the clearcut where the larger the opening that you have the larger velocity will be when you get down to ground level.

Those are the two basic concepts that I think would apply to our forests, and with the smaller smaller cuts you can mitigate somewhat the effects of wind on areas as long as you make sure that the shape is not going to cause more wind throw.

I think from our own experience, though, that with wind -- when I was in Kapuskasing I had a management unit, the northern management unit it was called at that time, and it, along with the Hearst management unit, suffered a great deal of blowdown damage and the damage occurred in the mature and overmature timber.

Interestingly enough, there was an area called the Sankey reference area at the time in Sankey

1	Township and it was an experimental area, small
2	experimental area of small strip cuts and block cuts
3	that was in the path of the blowdown area also. The
4	strips in that area were not blown down, whereas mature
5	timber was blown down in that case and I have no reason
6	why they weren't. They should have been blown down by
7	logic because the wind was so strong it was just
8	blowing everything down in that particular case.
9	The point is that wind is a variable type
10	of thing and regardless of how best you plan it out, in
11	certain cases you are going to get hit by a wind storm
12	that's going to blow down whatever you have standing
13	there regardless of how you have harvested the area.
14	Q. Now, you have also included a section
15	on species diversity from pages 122 to 130 which we
16	will deal with only briefly since, Madam Chair, Mr.
17	Martel we certainly have competition.
18	MADAM CHAIR: Is that above us or beside
19	us?
20	MR. CASSIDY: It's a dentist.
21	MS. SWENARCHUK. Mr. Lindgren speculates
22	that someone is sawing logs.
23	The question of biodiversity will be
24	dealt with in more detail in Forests for Tomorrow's
25	witness statement in Panel No. 9, Madam Chair, but just

1	with regard to Mr. Crandall's perspective as a forester
2	on this question, can we Mr. Benson, excuse me,
3	could we turn to page 125, Mr. Benson, please. You
4	have stated in part of the last sentence in the first
5	paragraph of that page:
6	"One cannot expect the artificially
7	regenerated stands to have the same
8	diversity throughout their life as a
9	natural stand."
. 0	That's the last sentence of the first
.1	paragraph of the page and could you indicate, please,
. 2	why you were of that view?
.3	A. Page 125?
. 4	Q. Yes, the last sentence of the first
.5	paragraph:
.6	"One cannot expect the artificially
.7	regenerated stands to have the same
.8	diversity throughout their life as a
.9	natural stand."
20	A. Well, I think because with an
1	artificially regenerated stand you aren't applying some
2	treatment measures to the areas that are changing the
13	species composition.
4	I suppose the most drastic example would
15	be if you apply herbicides to the area and you are

1	killing off what other vegetation there is in some
2	cases or delaying its growth, but in many cases you are
3	killing off some of the other vegetation.
4	So, in effect, for that portion of the
5	life in the extreme you have reduced the amount of
6	species on that particular area that's been treated.
7	How long does that last throughout the
8	life of the forest? Well, I don't know for sure, maybe
9	it comes back to what it would be under natural forests
10	and it might not. Some of these points really haven't
11	been answered.
12	Q. Further down the same page you
13	indicate in the first sentence of the last paragraph:
14	"On the other hand, some silvicultural
15	techniques can increase the diversity of
16	a stand."
17	Could you summarize briefly what some of
18	these techniques are?
19	A. Well, when you are talking about
20	diversity you could talk about diversity within a stand
21	and then the diversity if you have a stand of a
22	certain age, if you harvest that stand so you create
23	several ages within that stand, then you have
24	increasing the diversity; in other words, you are
25	increasing more edge within a particular stand

1	Instead of harvesting the whole stand,
2	you harvest part of the stand. Let's say you just cut
3	one half of the stand. Well, you have increased the
4	diversity right there. Let's say that you cut a
5	quarter of a stand now and you cut another quarter in
6	25 years, you have increased the diversity again.
7	So by using a silvicultural technique
8	that way, if you are trying for natural regeneration by
9	strips or small blocks, you would increase the
10	diversity within that particular stand.
11	Now, to increase the diversity within,
12	say, a given stand, you could try to use a particular
13	harvest method to encourage certain species to come
14	back or you can even plant or seed for certain species
15	if you want to increase their occurrence in that stand.
16	Q. Turning to page 127, the first
17	indented paragraph of the page is a quote from Farmer
18	et al. Could you read that into the record, please?
19	A. Farmer et al stated that:
20	"Natural regeneration in the boreal
21	forest should be used whenever possible
22	to ensure continuation of local
23	populations. Planting should be
24	considered as a tool for rectifying
25	silvicultural failure, for obtaining

1	regeneration and inherently difficult
2	situations and for changing species
3	composition. Planting stock should have
4	as broad a genetic base as the natural
5	stand it replaces."
6	Q. Do you agree with that statement?
7	A. Yes, I agree with that statement.
8	Q. And further on the page
9	A. I should state, too, that Farmer,
10	Noles and Parker, they are also three of my colleagues.
11	They are all doctors at the School of Forestry at
12	Lakehead.
13	Q. And could you read into the record
14	the last paragraph on the page, please?
15	A. "Tree improvement programs"
16	Q. Excuse me, Mr. Benson, the last
17	paragraph:
18	"Natural regeneration"
19	A. "Natural regeneration is the ideal
20	form of stand renewal. Stands renewed in
21	this way are characterized by stability
22	and continuity of productivity resulting
23	from the influence of all components of a
24	complex forest ecosystem, habitat and
25	biosynosis."

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1	Q. Could you tell us what biosynosis is,
2	please?
3	A. Biosynosis is more of a European
4	term. It is an ecological classification for a site,
5	usually referring to a plant and an animal association
6	for a certain type of site. Some type of ecological
7	zone, if you like, for both plants and animals.
8	Q. Is it your view that natural
9	regeneration is the ideal form of stand renewal?
10	A. In most areas of Ontario, yes.
11	Q. Now, on page 129 you have reproduced
12	provisions from the United States National Forest
13	Management Act with regard to maintaining and providing
14	diversity, and I wonder if you would read those into
15	the record please, paragraphs (a), (b) and (c).
16	A. Yes. They state:
17	"(a) NFMA" The National Forest
18	Management Act,
19	"requires a forest service to maintain
20	viable populations of existing native and
21	desirable non-native vertebrate species;
22	(b) NFMA directs the service forest
23	service to maintain the diversity of
24	trees species represented at the onset of
25	the management plan to protect the

1		resources and habitats upon which
2		vertebrate populations and endangered
3		species needs;
4		(c) NFMA directs the forest service to
5		preserve and enhance the diversity of
6		plant and animal communities and tree
7		species within each management area so
8		that the diversity is equal to or greater
9		than that of a natural unmanaged forest.
10		Q. Are these desirable provisions in
11	your view?	
12		A. For Ontario?
13		Q. Yes.
14		A. They are desirable. The problem we
15	would havw in	Ontario is we don't often know what the
16	existing situa	tion is, so we wouldn't know whether we
17	were enhancing	it or not. So that would have to be
18	determined fir	st, where exactly are we.
19		Q. Now, again we will refer only very
20	briefly to the	section with regard to wildlife.
21		What I would like to direct your
22	attention to i	s the top of page 131, the second
23	paragraph wher	e you indicated with regard to feature
24	species manage	ment:
25		"is assumed that the moose or deer

1	guidelines are applied across each forest
2	management unit."
3	Then you comment:
4	"Whether this happens remains to be
5	seen."
6	In your experience, are the moose and
7	deer guidelines being applied across each forest
8	management unit?
9	A. Well, it's difficult to keep up with
10	the moose and deer guidelines, but from the management
11	units I looked at they are being applied more with
12	respect to some type of corridors in some management
13	units.
14	It is not consistent throught the
15	provinces from what I have seen. They are being
16	applied, but not consistently.
17	Q. Now, on the bottom of page 131 and
18	132, you have written regarding the moose corridors
19	and, for example, you indicate at the bottom of page
20	132 in the second last line:
21	"The value of such corridors remains to
22	be quantified, but they are better than
23	no corridors."
24	Do you have an opinion regarding the
25	usefulness of the moose corridors overall?

1	A. Well, they probably serve a purpose.
2	I suppose they are something like in southern Ontario
3	where you have farmer fields and you have brushes
4	growing along and some trees growing along the fence
5	line between fields and they serve as a type of
6	corridor and they actually are refuge for some
7	wildlife. I imagine the same type of thing happens in
8	the moose corridors that are established.
9	The problem I have with the moose
10	corridors is the term corridor to me implies it is a
11	passageway to somewhere, and in some cases it is just a
12	passageway to another corridor. The corridors have to
13	link up to something other than another clearcut area
14	or to another corridor. They should be linking up to
15	an area that they can use as cover or shelter or for
16	whatever the particular habitat requirements are for
17	species.
18	MR. MARTEL: Do they lead to water?
19	Moose spend a fair amount of time around aquatic areas,
20	do these corridors lead to water?
21	THE WITNESS: When I was speaking of
22	corridors, I was including the reserves that are left
23	along streams and rivers that are more prevalent really
24	than the moose corridors in many areas. So from that
25	point of view they would be included, yes.

1	MS	. SWENARCHUK: Q. Now, you have	
2	written with reg	ard to site conditions and we wil	.1
3	be examining thi	s issue later when we deal with Volu	me
4	II of your witne	ss statement. Could I just direct y	our
5	attention to pag	e 135 where you have indicated:	
6	"1	f harvesting and silviculture were	
7	со	nducted to consider similar site	
8	co	nditions, more variety and the type	and
9	si	ze of cuts would be expected to occu	ır
10	in	the province. The critical points	are
.1	wh	at are similar site conditions and w	hat
12	ar	e their size."	
13	An	d you also continued discussing this	,
4	subject on to pa	ge 136, and you indicate beginning i	.n
15	the fourth line	at page 136:	
16	"T	nus, the large variety of site	
17	co	nditions that can occur in a small a	rea
18	ma	kes it impossible to apply site	
19	sp	ecific operations unless they were o	n a
20	mu	ch smaller scale than practised now.	
21	Во	th silviculture and harvest operation	ns
22	ar	e normally much larger than 10	
23	he	ctares."	
24	Co	ald you expand a little on why you h	ave
25	concluded that i	t is impossible to apply site specif	ic

1 measures unless they are on a much smaller scale than 2 practised now? 3 Well, basically because of the size of the operations now and the variety that occurs 4 5 within those areas, and when I looked at this in the 6 field I was looking really at gross variation in site. 7 I wasn't doing any specific detailed site classification. 8 9 But within an area that has been 10 clearcut, you can see a fair bit of variety just, say, 11 in terms of whether it is a wet site or a dry site, 12 whether it is a low site or a high site. 13 You can see that change in site conditions. 14 I think even if you look at the FEC 15 systems and any of their particular classifications, 16 not all of them, but the majority of them, you will 17 find that within that there a modal type of 18 description. They include a variety of sites in that. 19 They give a variety of soil depths, moisture conditions, organic matter which indicates that there 20 21 are a variety of different sites there. 22 Now, they have classified them together 23 and presumably they may be the same, but that is yet to 24 be proven. At this point in time they merely are a 25 classification in a book, not on the ground.

1	The problem boils down to what is a site,
2	how small do you go to describe a site, how low do you
3	go to describe a site and what's the important
4	differences between a site in terms of what you are
5	trying to grow, in terms of how you should treat that
6	area.
7	Many of these questions have not been
8	answered satisfactorily at the present time even on the
9	broad scale. Yesterday we went through the CIL map
10	that gave a very broad classification for Ontario and
11	even that was not complete for the whole province.
12	When you get down to some of the finer
13	methods, they are even less complete for the province.
14	The only region that really has a finer site
15	classification in place would be the northeastern
16	region which has a land type classification in place
17	based on land forms.
18	Q. Now, you have been advocating to the
19	Board a change to smaller cut sizes and natural
20	regeneration. How in your view would that approach to
21	harvesting relate to this variety of site specific
22	conditions that you have just talked about?
23	A. Well, first you will be going for
24	natural regeneration; and second, you would be avoidig
25	the problem of trying to classify some of the finer

differences in site or even some of the medium
differences in site by applying a method that would
more or less average out the differences.

In effect, if you were doing a strip of

- In effect, if you were doing a strip cut in a particular stand, you could be cutting that strip through a variety of sites, but you are leaving residual areas beside it of a similar site type that will allow that cut area hopefully to regenerate back to the area harvested. Even there there are question marks.
 - Q. Meaning what, Mr. Benson?
- A. Well, you can't apply any one particular method universally and there wouldn't really be any need for foresters if you could because the forester should be able to apply the best knowledge they can to obtain a particular type of regeneration and learn from that particular experience of how to improve it and modify it within the constraints for managing that area.
 - Q. Okay. How does that relate to the view you have been expressing which favours using smaller cut sizes than are now the norm?
 - A. Well, if a forester, say, for an area was going to obtain natural regeneration on an area by using smaller cuts and he tried applying particular

1 cuts, be it strip cut or block cut, and the results 2 from it were unsatisfactory, it would be a matter of 3 determining why were those results unsatisfactory; what was the reason. 5 If you are regenerating an area naturally, it's a matter of trying to get the site 6 7 conditions that are going to favour those trees on that particular site to regenerate naturally. So either 8 9 those conditions weren't provided for by the way it was 10 harvested or treated or the seed wasn't available. would have to find out what the particular problem was 11 12 and then modify your particular methods to correct that 13 problem. 14 0. Now, turning briefly to the question of site damage that you have discussed beginning at 15 16 page 137. You said on page 138 in the first paragraph: 17 "Although steps have been taken by the 18 industry to use low pressure tires and 19 winter harvesting of wet areas, both 20 compaction and rutting are common in 21 logging areas." 22 Now, what's the basis of that statement? 23 A. The basis of that statement was the 24 work I did last summer going around looking at 25 different harvested areas.

Τ.	Q. And Courd you expand on it somewhat
2	for the Board and explain what you observed, please?
3	A. Well, in that particular case, on
4	most of the licensed areas it was not difficult to
5	observe areas where there was compaction or rutting
6	that had occurred in the cut-over areas. Of course,
7	the most usual areas it would occur in is the wetter
8	spots. So on a licensed areas that had more wet areas
9	you had more rutting that would be occurring.
10	Q. Now, throughout Chapter 7 you have
11	reviewed a number of the environmental effects of
12	timber management that the Board has heard discussed
13	throughout the case and I would like you to refer to
14	page 146 and the sentence beginning on the fourth line:
15	"Unfortunately we do not know" et
16	cetera. Does this paragraph represent your view as to
17	how these negative effects could be mitigated?
18	A. I'm sorry, you referred to the
19	sentence and then the question was for the paragraph?
20	Q. I would ask you first to read into
21	the record that paragraph beginning with that sentence.
22	MADAM CHAIR: Excuse me, Ms. Swenarchuk,
23	is this regarding full-tree harvesting?
24	MS. CASSIDY: You are going to read in a
25	whole page of evidence?

1		MADAM CHAIR: No, a paragraph, Mr.
2	Cassidy.	
3		MR. CASSIDY: I'm sorry, we are on page
4	146 and I see	one paragraph.
5		MADAM CHAIR: The second sentence in that
6	paragraph. Is	that what you said, Ms. Swenarchuk?
7		MS. SWENARCHUK: That's correct.
8		Q. Mr. Benson, would you proceed,
9	please.	
10		MADAM CHAIR: As long as it is clear it
11	is linked to t	the effects of full-tree harvesting.
12		MS. SWENARCHUK: I will ask Mr. Benson
13	that question	later on.
14		Q. Would you please proceed, Mr. Benson.
15		A. Okay.
16		"Unfortunately, we do not know the
17		magnitude of these detrimental effects
18		over the area of the undertaking as
19		Ontario has not instituted long-term
20		studies to examine the effect on the
21		long-term productivity of the forest.
22		However, we do know that large clearcuts
23		are more detrimental to sites than
24		smaller cuts, that erosion and nutrient
25		loss increase with the size of the area

1	cut and time that vegetation it kept off
2	the site, and that harvesting and
3	scarification damage to the forest floor
4	can increase erosion and nutrient loss.
5	Most important, we know that these
6	detrimental effects to the site can be
7	reduced by using smaller cuts, less
8	severe scarification methods, harvesting
9	equipment that does minimal site damage.
10	Modified cutting favouring natural
11	regeneration is a procedure that could be
12	applied to replace existing methods to
13	reduce detrimental site effects."
14	Q. To respond to Madam Chair's question,
15	does this refer only to sites on which full-tree
16	harvesting is now occurring or to other sites as well?
17	A. No, I was referring to all sites with
18	that statement.
19	Q. Now, just a couple of brief questions
20	on your final chapter which has to do wholistic
21	planning. Could you summarize the point of that
22	chapter briefly, Mr. Benson, please?
23	A. Well, the point of that chapter is
24	really that in Ontario where we are in a situation
25	where if you want to manage the whole resource without

knowing what that whole resource is and without knowing
what the production levels are for a variety of sites
for those different resources, how can you go about
trying to reach some sort of position to take them into
account and to manage them the best way possible under
the existing circumstances.

Based on that premise, I suggested three points that were taken from Hunter which is reference 328 on page 152 that goes through three particular factors that should be considered when you are managing the forest for the biological elements on that forest, and the first of those that's on page 152 at the bottom is that:

"There should be a balance age structure to provide a continuum of habitat for species that occupy the various age classes."

That refers to Appendix 2 which is in

Volume II. It basically shows just a variety of age

classes of trees and the different species that may

occur within a certain forest over time. If you have a

variety of age classes you are providing a variety of

habitat for different wildlife species.

The second aspect is the spacial heterogeneity to provide the different size of area of

1	an age class to provide habitat for those species that
2	area dependent.
3	"In the boreal forests of Ontario, the
4	majority of the operations favour those
5	species that require large age class
6	areas."
7	I am just referring there to the larger
8	clearcut areas in Ontario, but spacial heterogeneity
9	means that the areas that you cut you would want to
10	have a variety of sizes so that you would be providing
11	for both those species that can habitat smaller areas
12	and those species that require larger areas that are
13	more uniform.
1.4	You really have to provide both and you
15	have to provide both over time. That combined with the
16	first point, the (a) point, you have to have those
1.7	different sized areas in all age classes.
L8	And (c): "Variety of forest types
19	provides the different habitat
20	requirements for species necessary to
21	ensure biological diversity."
22	That particular point merely refers to
23	keeping the diversity of species on the area, and
24	combined with the first two points, to keep that
25	diversity species on the area in the variety of age

classes and in different size categories.

Theoretically, by providing or managing a forest in that particular way, you can provide all the variety of habitats required by the different species for that forest. You may not necessarily know how much or how many of those species you are producing, but you would be providing the habitat for those species or you would be providing the conditions necessary for those species to remain on that particular forest area.

Now, based on that, I was just working on that premise, that working from that principle is a way to approach the problem when you don't know exactly all the details of what is on these forest areas.

Well, how do you approach it to take them into account, and I think you have to take into account those three principles and try to apply them the best way possible to the forest area.

combined with my own -- for more extensive management based primarily on economics, I combine that using extensive forest management which by its nature relies more on natural regeneration and to obtain natural regeneration relies more on smaller cut and leave areas which fits into the pattern of providing the variety of age classes and diversity over time.

1	Q. One final question on this volume of
2	your witness statement, Mr. Benson. Looking at page
3	152, you have discussed two possible ways of coping
4	with the issue of treating an area with an incomplete
5	inventory of the resources of the forest.
6	At the bottom of page 151 you suggest
7	that one option would be to cease harvesting operations
8	until the inventory knowledge base are assembled or, at
9	the top of page 152, apply no methods of harvesting and
10	silvicultural techniques that will limit the possible
11	harm to the area of the undertaking.
12	And you indicate in the paragraph below:
13	"The second method is more feasible than
14	the first" Presumably limiting the
15	possible harm,
16	"and could be applied to the area of
17	the undertaking by using a system of
18	modified cuts and natural regeneration.
19	So just one final question then. How is
20	it in your view that a system of modified cuts and
21	natural regeneration would limit the possible harm to
22	the area of the undertaking?
23	A. I think it relates to some of what we
24	discussed before, by using the modified cuts for
25	natural regeneration you are harvesting smaller areas

1 over a period of time. 2 It links into my summary there for 3 Chapter 7 where if you are reducing the size of the 4 clearcut, you would be reducing the overall detrimental 5 effects on the other elements that were mentioned at 6 the end of Chapter 7, plus hopefully you are achieving regeneration at a cheaper cost than by establishing it 7 8 artificially. 9 0. Okay. Those are my questions on 10 Volume I. If we could change now to Volume II. 11 MADAM CHAIR: Ms. Swenarchuk, what are 12 your plans for taking Mr. Benson through Volume II? 13 MS. SWENARCHUK: Mr. Benson will be --14 first of all, I will ask him to explain the methodology 15 by which this study was done and he will be doing that 16 and using a fair amount of material to explain that to 17 you. 18 He will then be proceeding through slides 19 of a certain number of the management units, as you 20 have seen from the slide list, and I have some 21 questions with regard to some of these management units 22 as he goes through the slides. 23 That's basically how we intend to do it. 24 MADAM CHAIR: All right. Because obviously there is a lot of overlap among the various 25

1	management units and it wouldn't be helpful to go over
2	and over the same point.
3	MS. SWENARCHUK: No, we don't propose to
4	do that. My questions will pertain to particular
5	conditions in particular management units.
6	MADAM CHAIR: All right.
7	MS. SWENARCHUK: As you would have seen,
8	Madam Chair, from the slide list, we don't propose to
9	show the 516 slides or even show slides from all the
10	management units. I think only half of them.
11	Q. Now, let's start with the
12	methodology, Mr. Benson. On pages 155 to 158 you have
13	outlined procedures used in the study.
14	Madam Chair, this is very difficult, the
15	noise level.
16	I would like you to inform the Board
17	first of what criteria were used for the selection of
18	the management units studied?
19	A. Basically I tried to select
20	management unit across the province and in the case of
21	Temagami and Lanceford I had more information available
22	on them and used them at that time, and I also had to
23	consider the distance to travel, so we tried to select
24	more within the easy range of Thunder Bay.
25	Q. I would ask you to describe with an

- 1 example how the satellite photography was used in the 2 study, but first of all with regard to field 3 inspections, how many of the management units were not inspected in the field? Can you recall which ones were 4 not? 5
 - I will have to count them up.

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- 7 Okay, we will do that later. For those that were inspected then, could you describe for 9 the Board how the field inspections were done?
 - Well, basically it was a two-phase process for doing the actual work. I had one student working with me -- a gradute forester, rather, who did the reconaissance type of work to try and gather up the preliminary information and data from the management plan and to try to locate where the activity was within the management unit, and then I went with him to the management unit to see and take a look at the management unit.

When we looked at the management unit, it is more of impression and certainly not a scientific survey. The organization I was working for was not a high budget organization, so that really it wasn't designed to set up surveys to examine what is the amount of exact percentage of ruttiness occurring in a particular management unit. That's not what resulted

- 1 from the survey.
- What resulted was my impression of that
- 3 particular management unit and what some of the
- 4 detrimental features were in that management unit. And
- 5 I think overall when I looked at the management units,
- 6 because of the organization that was involved, I am
- 7 looking at them a little bit differently because I was
- 8 really trying to take a look at the management unit as
- 9 being managed for all resources rather than just for
- 10 timber.
- There is really four points in that
- 12 particular area. First, I did look at the timber part
- which basically included two aspects; the allowable cut
- 14 calculationd and the silvicultural work.
- Secondly, I looked at the management for
- the animal and plant species of the area.
- Third, I looked at what I considered to
- be detrimental effects to the environment; and, fourth,
- and it is related to points 2 and 1, I looked at what
- 20 would these structures of the forest be over time in
- 21 terms of age classes, distribution, the size of the
- 22 area, the diversity that's going to occur on the area
- in the forest.
- When I did this study, too, I was
- influenced to a large extent by what I have read and

1 what I have taught, and I think from the point of view 2 of managing the forest as a resource, the items that 3 have influenced me most would be the article by Calish, 4 Flite and Teagarden. That's an exhibit that shows the 5 different production levels that are possible on a forest and how those levels can change. 6 7 MADAM CHAIR: Excuse me, do we have that 8 in the source book? THE WITNESS: It is in the first book. 9 MR. FREIDIN: Who is the author? 10 11 THE WITNESS: Calish, Flite and 12 Teagarden. C-a-l-i-s-h, with a C not a K. 13 MR. FREIDIN: Yes, I know. MS. SWENARCHUK: We have it in Volume I. 14 15 MADAM CHAIR: We found it, Ms. 16 Swenarchuk. Thank you. 17 THE WITNESS: Then the production curves 18 that I am referring to are on the third page of that particular article. 19 20 MADAM CHAIR: Which page number is that? 21 THE WITNESS: That would be page 219 of 22 the article. 23 MADAM CHAIR: Thank you. And where are 24 we on that? 25 THE WITNESS: What I was looking at on

1	that page was the production curves that they used to
2	illustrate the effect of using different rotation ages
3	on the management of a forest. Those are somewhat
4	similar to the ones I used in Volume I and really
5	that's where the idea came from, was Calish, Flite and
6	Teagarden.
7	MS. SWENARCHUK: Q. Could you
8	A. There are a couple of other points
9	along that line. That was one thing that influenced
10	me.
11	The other things that influenced me were
12	the American management plans on the U.S. Forest
13	Service plans and their particular planning system, in
14	particular the one just south of Thunder Bay in
15	Minnesota, the Boundary Waters Canoe Area, because I
16	have seen that area and dealt with the foresters there
17	over a period of time and read the management plan and
18	seen their approach to managing more than just a timber
19	resource.
20	The other articles that had an impact on
21	me anyway is the USDA article on the Management of

24 I don't think we have all that one as an 25 exhibit.

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Washington.

Wildlife Habitat in the Forests of Western Oregon and

1	Q. That's the volume; is it?
2	A. There are two volumes to that
3	particular document.
4	MADAM CHAIR: Excuse me. Did we have
5	that entered as evidence during the pesticides panel?
6	MS. SWENARCHUK: Perhaps I could clarify
7	this with Mr. Benson. I think I know what he is
8	referring to and certainly we have been using the
9	document. I don't know whether it has been entered as
.0	an exhibit, but I will clarify that.
.1	THE WITNESS: Part of it is an exhibit
.2	here, but not all of it. The part I was going to refer
.3	to is not an exhibit, as part of this exhibit anyway.
.4	MS. SWENARCHUK: Q. Go ahead and we will
.5	clarify this later.
.6	A. In their particular method there they
.7	have used a system of identifying the particular
.8	species and the habitat required by those species
.9	during a yearly cycle, and they have developed some of
20	the principles of managing the forest to provide those
:1	habitat the habitat required for all the wildlife
2	species of the area.
!3	Now, both the U.S. examples, forest
24	management plans and the western Oregon document
!5	indicate to me some of the gaps in volumes that we have

1	which are rather considerable. What I do gather from
2	them are the management systems that they have applied
3	to address their particular problem which, in most
4	cases, is using smaller cut areas that they recommend
5	in their particular management plans and in the western
6	Oregon document.

So when I looked at these areas I was influenced by that particular background and I was looking at more than jut timber production and trying to equate that to an Ontario situation, but with the lack of detailed information as to what effect these details have and really without the resources to .

measure what effect they would have in the long term or even the short term.

So that was the basic procedure we used for getting started and the background behind how we looked at the management units and what we are looking for within the management units.

Q. Just before you turn to the tools that you used in the process, could we go back to the question that the Board put to you some time ago.

That was a question as to whether what you have conducted here is an audit and how your study differs from the forest management agreement five-year reviews and whether you would favour the utilization of

1 a methodology closer to yours in the future in Ontario. 2 So could you address those questions, 3 please? 4 In response to the question whether 5 it was an audit, I would say yes, it is an audit, 6 perhaps not as complete an audit as what you would like 7 to have for all management units for the reason I stated before because you could do more precise 8 9 measurement of many of the features. 10 The difference between it and the FMA 11 particular methods -- well, first I think the method 12 that we used was somewhat better in a way because I was 13 trying to view the forest over time; both what it it 14 now and what it is going to be in the future rather 15 than just on a five-year assessment. I was looking for 16 factors of the environment where improvements could be 17 made in the way that the environment is being affected 18 by both the harvesting and silvicultural methods being 19 used. 20 I tried to examine them from the point of 21 view of managing it for what I consider to be sustained 22 yield rather than the Ministry's definition of 23 sustained yield. 24 Lastly, I tried to consider all the

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resources of the forest and basically what I went

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- Q. Yes.
- A. With the FMAs, one of the main points
 of the FMAs is to review the planned areas to see if
 the terms and conditions of the FMA have been met. So
 their review of the contractual obligations. Within
 that they tried to determine: Do they conform to the
 plan that was written for the area and do they conform
- Well, right a way I disagreed with the
 allowable cut method, whereas they are not disagreeing
 with that, they would be looking at how did it conform
 to their particular calculation for that five-year
 period.

to the allowable cut for the area.

- When they looked at regeneration, they
 looked at: Did it conform to the amount of
 regeneration they had planned for the area. It seems
 as if they do more field inspections now. I only got
 up to the forth five-year review. I think there is a
 fifth out, but I haven't seen it yet.
- Through time they seem to be spending
 more time now in actually doing some field inspections
 of the areas that have been treated for silviculture
 and for road construction.
- 25 Another big difference I think is that

1 other uses in the five-year reviews were really 2 restricted to following the OMNR guidelines. When I 3 looked at the areas I wasn't really looking at the 4 areas with the OMNR quidelines in mind. I tried to 5 look at the areas and say: If you are managing this 6 area for all the resources, how would you manage it. And whether or not they applied the guidelines, I wasn't really looking for that at the 8 9 time. I was looking more or less at what my impression 10 was of how this management was going to affect all the 11 resources of the area over time; the way this area is 12 being managed now. They are not really looking at that 13 in the FMA part, they are looking at the other uses as they have identified them and they are looking at 14 15 whether the guidelines have been followed. 16 So they are following more of a 17 checklist. I guess what I am questioning more is just 18 whether that checklist is adequate for managing the 19 area. 20 Does that answer all the questions on the 21 survey part? 22 MS. SWENARCHUK: I would just add to 23 this, Madam Chair, that when we come to final argument 24 in this case we will be attempting to assist you with the analysis of the differences in our examination 25

- since your question we think that only three areas that
 were examined by Mr. Benson have also been reported on
 the FMAs and we will help you in argument on those
 similarities and differences.
- MR. MARTEL: I think I am having

 difficulty with the fact that what I was looking for -
 I saw these and a comparison to the FMA, the reports of

 the five-year audits, and I am trying to get a handle

 on what that comparison looked like.

I was wondering if the audits of the FMAs

exceed what we were advised and the way they exceeded

what was planned for in terms of regeneration and so

on, and yet when you read this information you don't

get that. So that made it difficult to try and compare

the two.

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THE WITNESS: Yes. I think the difference there, when I looked at some of the FMA reviews, were that they are assessing how they met the planned regeneration or the planned harvest and in some cases the planned regeneration was not equal to the areas that was going to be harvested.

Now, they could meet their planned regeneration but still not regenerate all the area that was harvested. I was looking at it from the point of view -- from a different point of view.

т.	MS. SWENARCHUK: Q. Pernaps one more
2	question having to do with methodology, Mr. Benson, and
3	that is, the Board has been provided with the
4	information from the Ministry with regard to clearcut
5	sizes in certain areas and could you indicate how your
6	methodology and your clearcut definition differs from
7	that that was used in the MNR clearcut exercise?
8	A. I am just trying to remember what the
9	clearcut definitions were in the MNR exercise. I
.0	wasn't really looking at them in the same way. What I
.1	was looking for was where the cut-over areas were and
.2	what the sizes of them were what their size was.
.3	The definition of a clearcut was a little
.4	more difficult in my particular situation because of
.5	the fact that, again, I was limited as to how I could
.6	identify all these areas on the ground and get all of
.7	the necessary information that would be adhered to; the
.8	stricter definition that was used in the clearcut
.9	exercise.
0	In other words, I didn't have the exact
1	year of the cut-over available. All I can tell you was
2	that these areas were cut-over. I couldn't tell really
3	when it was cut over, I could only estimate that.
4	Now, did you want to you asked how
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1	Q. Yes, I think there is enough	time
2	remaining before the lunch break. Perhaps you	could
3	use the slide example, the first slide I think	that you
4	plan to show has to do with the Gordon Cosens	
5	management unit.	

A. I think I should say first what I did was I used Landsat imagery and basically it turned out to be the best or most convenient way of viewing some of these management units and getting around to the management units and doing the clearcut part.

What I was trying to look at for the clearcut part was to find these large areas or areas where the clearcutting was concentrated, and I think I should stress right from the start that, as I said, when I looked at the large cut areas I didn't have the age class differences or the actual ages for the area which are important.

The main point was that most of the contiguous clearcuts where you are putting together a number of years in a row in my case comprised more than the last ten years, so they could go on for more than ten years and it's not really a particular point that I want to make.

The point is that the size of those clearcuts and in a particular year and the grouping of

the years, so if you are putting one year beside
another year beside another year you are really ending
up with one large clearcut somewhere in there and what
is the real size of the large clearcuts is what is
important and that is hard to define.

I think you could see from the other provinces that it hasn't been adequately defined in all those provinces, that they have a problem in defining that and determining that.

Now, when I took the -- to try to use the satellite photographs to determine what the detrimental effects would be, I took pictures of the satellite negatives because you can't really use them alone unless you hold them up against the light, but I had to take photographs of them and use the photographs or slidea and from the slides for determining the -- or mapping the cuts, I projected them on to 1:50,000 maps.

The actual areas of the cut-overs that we looked at were determined directly from the imagery, though, not from the maps, 1:50,000 maps that we used.

The only reason I projected on to the 1:50,000 maps was I was trying to see where was that cut area and where were the streams, et cetera, lakes, et cetera within that cut area. I could show you an example of that to indicate just what occurred in that

situation. I don't know how best to illustrate this. 1 2 In this case this is an area north of --3 MR. CASSIDY: If we could have a moment to sit in on this, unless you put it up on the board. 4 5 MS. SWENARCHUK: Would it be possible to do it by putting it on the Board, Mr. Benson? 6 7 MADAM CHAIR: I don't think I can see it 8 from there. 9 THE WITNESS: They wouldn't be able to 10 see it from there. Maybe I can show it here and then 11 put it on the board. Would that... 12 MR. FREIDIN: Sure. 13 THE WITNESS: Now, this isn't the actual 14 image, but this a photograph of a large photograph of 15 the slide of the image. 16 This is a cut area northeast of 17 Armstrong, and what I did was I would make my slides 18 out of the transparency, see where the cut-over is and 19 from there I would transfer to a 1:50,000 map or 20 several maps depending upon the size of the cut-over. 21 This is just a one-year cut. I am sorry it may not be -- I'm not too sure of the number of years, but it's 22 all a fairly recent cut. 23 24 Now, on the map I mark usually in red

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where the cut-overs were. Standing timber or reserves

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- I marked with, in this case, green little maps, I 1 2 marked them with black. I used this one as a example because I marked the waterways in this way in blue and 3 in most maps I didn't bother to do that. 4 5 I did that because I wanted to see what 6 is the relationship of this cut-over area to the water 7 area and how adequately is -- what effect would the size of this area have on the rivers and streams of 8
- 9 that area and this is, again, a largely unanswered

10 question. When you have a large area that's clearcut,

where does that water go.

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12 I think I mentioned it in my document 13 there buffer strips on streams, et cetera. 14 assumption there is that all the water would buffer down to the streams, but there are a great deal of 15 16 intermittent streams, small streams in the area and the 17 USDA management -- or manual for western Oregon and 18 Washington states that in the U.S. 85 per cent of the 19 water starts in those intermittent streams -- or 85 per cent of the area in those intermittent streams. 20

So I'm not too sure of the figure for Ontario, but I have to work with that basic knowledge and I am presuming that 85 per cent is correct.

Well, you have water that's traversing and going into these larger streams from intermittent

1 streams. Based on that, I could only say that these 2 large clearcuts then have a great deal of area where 3 you don't really have a buffering capacity; in other 4 words, you are going to have water go in through the 5 intermittent streams and then directly into a larger 6 waterbody. The only other assumption you can make is 7 that all the other water flows through it across the 8 land and through the reserves and into the stream, and 9 I don't think that occurs. 10 Now, part of this is subposition, part of it is not. It is something I can't measure. I think 11 really it is something that should be measured. 12 13 MADAM CHAIR: Remind the Board again, Mr. 14 Benson, did you say these transparencies are on scale 15 now, are on scale on the map? 16 THE WITNESS: On this? 17 MADAM CHAIR: Yes. 18 THE WITNESS: I just did the transparency on this one and the other ones I marked directly on the 19 20 map, but to scale they are 1:50,000 roughly. They are 21 not exactly accurate. 22 Why aren't they exactly accurate, because I took slides and I projected them on to a map and 23 there is some variation in the way I took the picture, 24 25 et cetera, and some adjustments that I had to make.

1	All I was using the map for was to find
2	out where the cuts were in relationship to the
3	waterways of the area and where the major reserves were
4	to get an idea of the size of the cut area and to get
5	an idea of how traversity would there be in that
6	particular area.
7	Now, just to give you a relative
8	indication, an area like this, a block that block
9	there would be over a hundred hectares in size.
LO	(indicating)
11	MR. FREIDIN: The witness is pointing to
12	a small block on the aerial photograph.
13	MADAM CHAIR: So the configuration we see
L4	on this map, how many hectares is that transparency
15	covering?
16	THE WITNESS: I didn't measure the area
L7	of the transparency. What we measured was the actual
18	Landsat negative and on that Landsat negative we
19	measured this area and it was up to around 7,000 gross
20	hectares.
21	MR. MARTEL: That one there? (indicating)
22	THE WITNESS: No, the Landsat images.
23	This is a photograph from the Landsat images.
24	MR. MARTEL: The size of that clearcut,
25	photo size?

1	THE WITNESS: It was roughly 7,000 gross
2	hectares.
3	MR. MARTEL: Okay, that's what I wanted
4	to know.
5	MADAM CHAIR: So what we are looking at
6	on the map is in the order of 7,000 hectares of
7	clearcut?
8	THE WITNESS: That's right. Now, this
9	one you can see has left corridors here and you can see
10	them marked on the map and they are on the photograph
11	here, too, but before I was mentioning where do the
12	corridors go to. Sometimes they are just corridors to
13	a clearcut.
14	MR. MARTEL: You said in the States they
15	have done studies of how the water gets from the minor
16	streams into starting on their way to the major area
17	but we haven't done any in Ontario?
18	THE WITNESS: I'm not aware of. There
19	may be something done that way. It is something I
20	couldn't really figure there was something wrong, it
21	struck me: Where does this water go to, and it's
22	something you can't see. The more flat the area is you
23	get water going into the ground or you get water
24	running across the ground.
25	When you get erosion of the area it is

1	going to be not as dramatic from a flat area than it
2	would be from a rough area, but I think the problem is
3	I haven't seen where there has been a study on what is
4	the effect of clearcutting in an area, what's the
5	erosion from these particular areas.
6	MS. SWENARCHUK: Mr. Martel, that
7	question of the American information sources I think
8	can be addressed by Mr. Maser in January.
9	MR. FREIDIN: Just for the record, the
.0	witness was referring to the photograph of the Landsat
.1	imagery and referring to the corridors, you were
.2	referring to the block, what appears to be dark or
13	black lines over on the right-hand side of the entire
.4	cut-over.
.5	THE WITNESS: Yes. I want to go through
.6	that. How do I decide what is cut-over when you look
.7	at these Landsat images. Now, the photograph is not a
18	clear as the image itself.
.9	Basically what I was looking at, these
20	pink areas or white areas are the more recently
21	disturbed areas.
22	MR. FREIDIN: That's the light pink or
23	the dark pink?
24	THE WITNESS: (inaudible)
25	THE REPORTER: Pardon me?

1 MR. FREIDIN: He said the darkest stuff 2 here is tape that I have put on. 3 MADAM CHAIR: The dark pink colourations. 4 THE WITNESS: So of the photograph 5 itself, the lighter pink areas or white areas are the 6 more recently disturbed areas. 7 MADAM CHAIR: Do you want to make this an 8 exhibit? 9 MS. SWENARCHUK: Yes, and this map as 10 well. 11 MADAM CHAIR: All right. Let the 12 photograph be Exhibit 1621 and this will be a Landsat 13 satellite... 14 MS. SWENARCHUK: It is the enlarge photo 15 of the slide image. 16 MADAM CHAIR: Enlarged photo of slide 17 image. 18 MS. SWENARCHUK: A Landsat image, and it 19 is a cut-over north of Armstrong. 20 MR. FREIDIN: If you want to be exact, 21 Madam Chair, it is a photograph of the Landsat imagery 22 for... 23 THE WITNESS: Well, I would say including 24 rather than for. 25 MR. FREIDIN: Including Pikitigushi.

1	MR. CASSIDY: Who?
2	MR. FREIDIN: You give the reference
3	there.
4	THE WITNESS: The map is entitled
5	Pikitigushi, P-i-k-i-t-i-g-u-s-h-i, Lake. It is map
6	52I/7 and it's numbered in part of my documents as map
7	No. 1A.
8	MADAM CHAIR: All right. The map will be
9	a separate exhibit, Exhibit 1622.
10	MS. SWENARCHUK: Yes.
11	EXHIBIT NO. 1621: Enlarged photo of a Landsat
12	image depicting a cut-over north of Armstrong.
13	EXHIBIT NO. 1622: Map entitled Pikitiqushi Lake,
14	referred to in Mr. Benson's
15	evidence as Map 1A.
16	MS. SWENARCHUK: Now, with respect to the
17	map, Madam Chair, a total of 57 cut-overs maps have
18	been prepared. No, we do not intend to go through each
19	one separately, but we have prepared to file with you
20	the full 57 maps and we have prepared a list of those
21	maps as well, which I will distribute when we
22	reconvene, which lists the number maps and management
23	units to which they apply and I believe the Ministry
24	has made us a copy of the entire 57 maps.
25	MADAM CHAIR: All right. Thank you.

1 What is the date on this Landsat image? 2 THE WITNESS: I will have to check the 3 date on this one to be sure. That was answered in one 4 of the interrogatories that we answered. 5 MS. SWENARCHUK: Mr. Benson, I guess we will break now for lunch and we will reconvene after. 6 7 MADAM CHAIR: We will see you at 1:30. 8 Thank you. 9 MR. CASSIDY: Madam Chair, just one minor 10 matter that I think can probably be dealt with at lunch 11 or perhaps at the end of the day. 12 Of the various exhibits from the other 13 provinces which Mr. Benson filed, there is reference to 14 what I take to be the request letter from Mr. Benson dated October 9, 1990 and I am wondering if Ms. 15 16 Swenarchuk would be kind enough to make that available 17 for simple review outside the hearing time, either at lunch or at the end of the day so I might have an 18 19 opportunity to look at that. 20 MS. SWENARCHUK: Certainly. 21 MR. CASSIDY: Thank you. 22 MADAM CHAIR: Thank you. 23 ---Luncheon recess taken at 12:00 p.m. 24 ---On resuming at 1:35 p.m. 25 MADAM CHAIR: Good afternoon. Please be

- 1 seated. 2 MR. CASSIDY: Madam Chair, just on that 3 last matter that I asked about at the break. I am 4 advised by Ms. Swenarchuk and Mr. Lindgren that they 5 are going to arrange to send that letter I requested to 6 me over the break prior to my being on my feet in January, and for that I thank them. 7 MS. SWENARCHUK: Just before Mr. Benson 8 9 recommences, Madam Chair, I have put on your desks page 377 of his Volume II which appears to be missing in the 10 11 copies of the volume. 12 MADAM CHAIR: Thank you. 13 MS. SWENARCHUK: Q. Now, would you like 14 to continue to describe the methodology of the study, 15 Mr. Benson? 16 There were a couple more points Α. 17 related to what's on the photograph and how that related to these interpretations. I believe just 18 19 before lunch I started into what the different shades 20 mean from the transparency and how they are 21 interpreted. 22 I think we got to the point where I said 23
 - that the whitish areas or pink areas were the more recently disturbed areas. The dark green areas, as has been pointed out before, are the mature forest and

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1 conifer forest.

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2 The lighter green is a little more 3 difficult to interpret and could either be hardwood or a mixture of hardwood and conifer or very a thin scattering of conifer, and the shades can get very subtle and fine and within the area that has been disturbed you can see that it will change from light white, you will see a transition from light white or pink and then into lighter shades of yellow and yellowish/green.

> It would just indicate that there are different amounts of vegetation on the area. At this stage I can't really tell what is a conifer, hardwood or whatever. What's the age of the various -- of the disturbance on this area? I don't know exactly when the cut-overs occurred in this area how many cut-overs occurred.

The important point that I was looking at was the fact that in essence it is basically because it is all in the -- roughly the same age classes, roughly all storing up to being recently disturbed and in that area, that can be anywhere from one to ten years when that disturbance occurred, and I really don't know over how many years the disturbance occurred except I would classify it as all being roughly the same.

1	In essence, what you have is one large
2	clearcut in that particular area. There is no other
3	cuts around it that I can see that are close by, so in
4	essence I would say that that is one large clearcut.
5	In this case, there are some other
6	reserves of timber and so on within that large clearcut
7	which may be a problem in the long run because what
8	happens to those reserves over time as that area come
9	back up? What purpose do those reserves serve? Do
10	they become part of new forest?
11	What purpose do they really serve now
12	because you do have quite a large change in the habitat
13	created by the area cut and you you created borders
14	within that cut area. You will find that reserve area
15	is going to be blown down or fall down or eventually
16	just grow old and become part of the single age class
17	that's coming up on the area that was cut.
18	MR. MARTEL: Can you tell you can't
19	tell the size of those reserve widths in particular?
20	THE WITNESS: The resolution of the
21	satellite photography in essence for this type is 30
22	metres. Meaning that you will have to be 30 metres
23	wide before you would show up on the photograph.
24	So can you tell how wide the reserves are
25	here? If they are 30 metres wide they are going to

1	show up as a dark line on the image and certainly if
2	there is 60 metres, there shouldn't be any problem
3	That was the basic method I used after
4	transferring data to the satellite image to these maps.
5	I did that transfer basically because I wanted to see
6	where were the streams and lakes on the maps, and when
7	I went back and I looked at the image and used a ten
8	times magnifying scope or glass to check this out to
9	relate what I saw on the map with the photograph, to
10	see where exactly was the cut in relation to these
11	streams and lakes that I could identify on the lake
12	because, as I said earlier, the transference to the map
13	wasn't completely accurate the way I did it.
14	It was a very rough method done in the
15	basement of my house and basement of a university, so
16	it was not completely accurate, but to check just how
17	large the reserves were or was there a reserve around a
18	lake, and I would go back to the original transparency
19	and check it on that transparency.
20	Then on this particular map, I marked the
21	areas where I figured there might have been a reserve
22	but not really a sufficiently wide reserve or enough of
23	a reserve or in some cases no reserve on an
24	identifiable stream.
25	These are streams identified in a

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These are streams identified in a

1 1:50,000 map, so it doesn't include intermittent 2 streams. These include streams which will be classed 3 as non-intermittent. So the points I have identified are areas where I figured there possibly should have 4 5 been a reserve if you are going to cut in that 6 particular pattern --7 MR. FREIDIN: Is that indicated on the diagram or the map that you are looking at, those areas 8 9 where you say there was a reserve or should have been a 10 reserve? 11 THE WITNESS: That's the red, dark pink 12 pieces of tape that you asked about before. 13 MS. SWENARCHUK: Some of them are marked 14 with S. 15 THE WITNESS: Which indicates stream and L for lake. 16 17 MR. FREIDIN: Is that an area where you 18 say it was sufficient, deficient or just existent? 19 THE WITNESS: Insufficient. 20 MR. FREIDIN: Pardon me? 21 THE WITNESS: Insufficient. 22 MR. FREIDIN: Thank you. 23 THE WITNESS: Turning to resolution two, 24 it will pick up some of the modified cutting. In this 25 case, there was some strip cutting done in this

1 particular area and you can pick it up just up in that 2 part there. You can see where strip cutting, some 3 strip cutting occurred. (indicating) 4 MADAM CHAIR: Mr. Benson is pointing to 5 an area on the right corner of Exhibit 1621 and you can 6 see lines indicating a strip cut. 7 MS. SWENARCHUK: Show that to Mr. 8 Freidin, please. 9 Q. That one has not been marked as an 10 exhibit. Did you want to use this as part of your 11 explanation? 12 A. It's really the same photograph of 13 the same area except at a different scale. It isn't 14 enlarged quite as much, but it shows the same pattern. 15 MADAM CHAIR: Do you want to enter this 16 as an exhibit, Mr. Benson? 17 MS. SWENARCHUK: This will be Exhibit 18 1622. 19 MADAM CHAIR: This will be Exhibit 1623. 20 The map is 1622. 21 MS. SWENARCHUK: Yes. 22 MADAM CHAIR: How would you describe this 23 exhibit? 24 MS. SWENARCHUK: Mr. Benson, how would we

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describe this exhibit?

1	THE WITNESS: The same description as the
2	one before that.
3	MADAM CHAIR: The one before that is the
4	enlarged photo of a slide of the image of a cut-over
5	north of Armstrong.
6	MS. SWENARCHUK: Landsat.
7	THE WITNESS: This one will be the small
8	version.
9	MADAM CHAIR: All right.
10	MR. FREIDIN: What is that going to be
11	called?
12	MADAM CHAIR: 1621.
13	MR. FREIDIN: What is going to be called?
14	MADAM CHAIR: A photo on a smaller scale
15	of the same site as Exhibit 1621.
16	
17	EXHIBIT NO. 1622: Photo on a smaller scale of the same site as Exhibit 1621. a
18	cut-over north of Armstrong.
19	MADAM CHAIR: Mr. Benson, why did you
20	choose this map out of the 57 that you prepared to show
21	the Board?
22	THE WITNESS: This is the first one I did
23	and the first one that we took the most care to draw it
24	on the plastic transparency to show the streams and the
25	lakes and the rest. We didn't spend as much time to

1	make it quite as neat.
2	MADAM CHAIR: The size of this clearcut
3	you suggest is in the order of 7,000 hectares?
4	THE WITNESS: 7,000 gross hectares.
5	MR. MARTEL: You have marked off the
6	streams, but using the guidelines, is it necessary
7	under the present guidelines to in fact have buffers on
8	all of those streams using the existing guidelines?
9	I don't know if you went into it in that
10	much detail, Mr. Benson.
11	THE WITNESS: I don't believe it is. You
12	are required to have it on all streams and/or lakes.
13	It depends on the fish guidelines.
14	MR. MARTEL: I don't know if this will
15	show up as a term and condition that you have got to
16	have a buffer around streams, but it seems like that's
17	the direction you are heading in if you are suggesting
18	that you are losing water.
19	THE WITNESS: I think really yes,
20	that's where it is heading to, I think.
21	If you take a look where the
22	interpretation of what the effect of large clearcuts is
23	on the land, the water, the wildlife, et cetera, across
24	the rest of Canada and the States, it generally seems
25	to be that they say it's detrimental and that's the

1	point I would make, that if it is detrimental in Canada
2	and the United States and other areas of the world,
3	then I would think that large clearcuts are detrimental
4	also in Ontario and should be controlled somewhat.
5	MADAM CHAIR: Mr. Benson, of the 57 maps
6	you did, was this clearcut area the largest?
7	THE WITNESS: No. I don't know where it
8	would rank in terms of size. It's not so much size
9	alone, this one I chose because it shows really what I
LO	would classify as one age class also. There is only
11	one age class that would appear to be developing on
L2	that cut-over at the present time. So it's going to be
L3	coming up as one age class in the future.
L 4	MADAM CHAIR: Except for the reserve
1.5	areas?
16	THE WITNESS: With reserve areas. So it
17	will probably be absorbed or fall down over time. So
18	one age class of roughly 7,000 hectares.
L9	The alternative to doing that type of
20	planning is: Well, would you want it to come up in
21	smaller units of forests in a variety of age classes so
22	that your harvesting might be over a longer period of
23	time, but you might create conditions in that forest
24	that would be better for the environmental part and for
25	the wildlife part.

1	In other words, you could in effect
2	clearcut that same 7,000 hectares, but you could do
3	that in smaller blocks or in strips and over a longer
4	period of time in order to achieve the same type of
5	or to achieve a better effect on the management of the
6	area.
7	MS. SWENARCHUK: Q. Is there anything
8	you want to add to your description of the methodology,
9	Mr. Benson?
10	A. We used two different types of
11	Landsat photographs with two spectrabans and they will
12	show up in the slides. We used one that showed more of
13	a reddish view to it rather than the photographs that I
14	just showed.
15	Q. If you want to begin with the slides
16	now, Mr. Benson, I believe you are beginning with the
17	slide for the Gordon Cosens Forest Management Unit, are
18	you not, which on your list Madam Chair, Mr. Martel,
19	begin close to the bottom of the first page on the list
20	we provided you.
21	MADAM CHAIR: What exhibit is that, Ms.
22	Swenarchuk?
23	MS. SWENARCHUK: It will be photograph
24	No. 121.
25	MADAM CHAID. 121

2

1 MS. SWENARCHUK: Excuse me. The list is 2 this list which I believe I provided you yesterday of 3 the order of the slides. 4 MADAM CHAIR: Is that a separate exhibit 5 number? 6 MS. SWENARCHUK: I don't think it has. 7 No, I don't believe it was marked. For convenience I 8 had extra copies -- an extra copy here if you would 9 like. 10 MADAM CHAIR: Yes, please. Could I have 11 another copy. 12 Are we starting at slide 121? 13 MS. SWENARCHUK: That's right. 14 propose, Madam Chair, is Mr. Benson will show the 15 slides and provide the commentary for the management 16 unit in question, we will then shut off the machine and I will ask any additional questions I have from the 17 18 witness statement pertaining to that management unit 19 and we will move on to the next management unit. 20 MS. SEABORN: Excuse me, Ms. Swenarchuk. 21 The list that was provided with the witness statement, 22 does that description still match the slide numbers 23 that we are using today? 24 MS. SWENARCHUK: Yes. 25 MS. SEABORN: Thank you.

1	MS. SWENARCHUK: We are not showing all
2	of them, but the numbers on the list that you were
3	provided with today correspond to the slide
4	descriptions in the larger document.
5	MS. SEABORN: Thank you.
6	MS. SWENARCHUK: Q. Now, I believe we
7	have slide No. 121, Mr. Benson?
8	A. Yes. This is a photograph of one of
9	the satellite images and this is near Kapuskasing.
10	Kapuskasing would be up in this area here.
11	(indicating)
12	The distance across the whole photograph
13	would be about 180 kilometers. The cut-over area in
14	this one, it's very mixed up. It includes company land
15	and it has been cut-over a variety of ranges of time
16	and at that point to this point it will be distance of
17	roughly 60 kilometres to give you an indication of the
18	scale.
19	These satellite photographs were taken
20	from an orbit of 40 miles up, so they are fairly clear
21	considering the distance away that they were taken.
22	The area in this case I classify as a
23	contiguous clearcut and was roughly a boundary along
24	like so and that's the one that was classified as over
25 _	200,000 hectares as a contiquous clearcut, and I would

T	stress a contiguous clearcut meaning that it has
2	been it is not one clearcut because one clearcut
3	usually can mean an area that's cut over in one
4	particular year; whereas a contiguous clearcut refers
5	to the area that's been cut over a period of years.
6	The same type of interpretation on this
7	photograph is made for the other one; in other words,
8	these pinkish areas show the more recently disturbed
9	areas and you can see a number of them on the
.0	photograph.
.1	MR. MARTEL: Were you able to get any
.2	time frame in which the original cuts started down to
.3	the most recent ones?
. 4	THE WITNESS: Just a very rough time
.5	frame and only for the more recent cuts. I would like
.6	to do that.
.7	In fact, it was a suggestion I had for a
.8	study for a student, but we didn't quite get it
.9	underway. If we could do that with the satellite
20	images it would be interesting to do that. You would
1	have to get good information on when the area was
2	actually cut and correlate with the colour there.
!3	There are two ways you could do that,
!4	either by directly interpreting the image by eye or you
!5	can actually get this data into the computer with the

1 different bands. In fact, that's how this is 2 generated. It is generated from a computer, it is not 3 really a negative, but you can use the data in a 4 computer to do their separation and try to make your 5 correlations there if possible. It could be possible to try to correlate the age of cut with the colour. 6 7 MR. MARTEL: The people who did the cutting, though, would they have not had all that 8 9 material available? 10 THE WITNESS: Quite likely they would have some of that material available. 11 12 MS. SWENARCHUK: Q. To your knowledge, 13 does the Ministry have this kind of information, Mr. 14 Benson? 15 The cut-over information? It varies 16 it varies from office to office whether they have it or 17 not. 18 Q. You noted that in the report from the various units; did you not? 19 20 That's correct. 21 MADAM CHAIR: Mr. Benson, to follow up 22 Mr. Martel's question. With respect to the sensitivity of the satellite image, how far back could they go with 23 respect to identifying an area as a clearcut rather 24

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than a regenerated area; for example, something had

1 been cut 30 years ago, would it show up as a light 2 green patch or as a dark forested area? 3 How far back would you go in identifying 4 clearcuts? 5 THE WITNESS: That's a problem and when 6 you try to put ages on it I couldn't do that. You 7 asked me what's the age of all the cut material within 8 that area I outlined. 9 Well, I would estimate probably 40 years, 10 but there could be some area within there that might be 11 even 50 years ago. 12 MADAM CHAIR: But could we call an area that was cut 50 years ago a clearcut? I mean, if it 13 were regenerating for 50 years that's not a clearcut 14 15 anymore; is it? 16 THE WITNESS: I guess it depends on when 17 do you stop cutting a cut-over a cut-over because 18 basically if you manage a management unit on a clearcut 19 basis, eventually it is all one clearcut. 20 MADAM CHAIR: But at some point you have 21 a regenerated forest? 22 THE WITNESS: That's right. You see, the 23 point that I think is important is not really the two 24 hundred and some thousand hectares. The importance 25 more is in the distribution of those yearly cuts or

1	those blocks of areas that are the same age class.
2	In other words, I am looking more at how
3	are you distributing that diversity in the areas that
4	you are harvesting. So even within this large
5	contiguous clearcut, you can see some diversity, but
6	perhaps well, in fact not as much as you would like
7	if you were managing to create more diversity.
8	For example, the area here that's shown
9	in pink is really the area that was shown in the
10	clearcut exercise for Spruce Falls for the area of the
11	one year cut that's indicated by this particular area.
12	MADAM CHAIR: Excuse me, that was done
13	for Panel 17B or A?
14	MS. SWENARCHUK: Arising out of your
15	interrogatory question I think in Panel 10.
16	THE WITNESS: That really is one age
17	class that's been created by the cutting patterns that
18	are cleared there.
19	My particular argument would be that if
20	one cut in one year is too large that should be broken
21	to create more of a pattern and to create more
22	diversity throughout the forest.
23	So if you looked at this instead of
24	seeing large patches that are relatively the same
25	colour, you would see much more diversity in the age

- l classes within that large contiguous cut-over area.
- 2 MR. MARTEL: The difficulty in
- 3 understanding what's going on is if you put that pink
- 4 area in the context of what's around it and if you just
- 5 move over to the left a little bit, I think you see
- 6 another pinkish area, and what happens to the wildlife
- 7 and everything in that?
- Not just looking at those two, but in
- 9 terms of the rest of the background that it's up
- 10 against. If you go below it, you know, it would be
- ll nice to know how old that is to determine whether in
- 12 fact it is beneficial for wildlife.
- 13 THE WITNESS: Exactly. That's why I
- think it should be planned so that you are planning to
- that diversity throughout the whole area and spread
- that diversity out as much as possible.
- Actually, I think we are moving into a
- different company's unit on this side and I'm not too
- 19 sure. I should check that out. Some of these up here
- are actually private, they don't belong to a company.
- 21 This is a township area here. You see can it's square
- and there was no reserve along the river here, whereas
- there was within the company unit. So that was the
- 24 dark line here...
- THE REPORTER: Excuse me.

Т	MS. SWENARCHUK: You Will have to speak
2	up, Mr. Benson, the reporter is having difficulty
3	hearing you.
4	Q. Could you just remind the Board with
5	regard to the area that was measured in the clearcut
6	exercise - I expect this kind of question will recur in
7	the afternoon - do you recall approximately the size of
8	that area?
9	MR. FREIDIN: Which area are we referring
LO	to now, please?
11	THE WITNESS: That was the area for
12	Spruce Falls, the one-year cut area. There were four
L3	area measurements I believe that were made for those
4	and I think the measurement that was made for that was
.5	in the area of 3,000 and some hectares without
.6	including the large residuals that were left. I would
.7	have to check that to be sure.
. 8	MS. SWENARCHUK: Q. So just to clarify,
.9	your recollection is that that pink area represents
20	approximately 3,000 hectares?
21	A. Yes. I would like to check that to
22	make sure, though.
23	Q. Okay. Do you have any other comments
4	from this slide, Mr. Benson?
5	A. Yes.

1	MR. FREIDIN: Madam Chair, for the record
2	I think we better indicate somehow in words where that
3	pink area is because when we go back to this photograph
4	some months or years from now we will never know.
5	MS. SWENARCHUK: I will try that. This
6	is the two rather elongated pink coloured areas about
7	mid-latitude of the photograph and close to the
8	left-hand edge.
9	How is that?
10	MR. FREIDIN: There are numbers on the
11	left-hand side, do those help us?
12	MADAM CHAIR: I think they are the same
13	numbers on either side of the slide, Mr. Freidin.
14	MR. FREIDIN: All right. So opposite the
15	numbers which are on the left side of the photograph
16	and the top of the two top series of numbers of the
17	two series on the left-hand side of the photo.
18	THE WITNESS: 49 on each side, if that
19	helps you.
20	MR. FREIDIN: Thank you.
21	MS. SWENARCHUK: Q. Go ahead, Mr.
22	Benson.
23	A. The other area that shows up just
24	partially was the ten-year cut for that exercise that
25	was along Ecclestone Road which is up in this

- 1 particular area and just the bottom portion of that 2 shows up. 3 The slides I will be showing yuo later on 4 just to give you a rough indication of where I am 5 going - and this is a problem, trying to relate to 6 people where we took the pictures - but basically I 7 took slides down this road and we took pictures in the 8 area here that had been recently cut and scarified and 9 down the road going across here, took pictures in this 10 area of an older area that was cut and has been 11 partially planted or perhaps all planted, but partially regenerated, up through this area, some photographs in 12 13 this area. (indicating) 14 Here you can see a small little lake with 15 pink around it. In that particular case, that small lake had been clearcut, too, on the one side of the 16 lake, back up through this area, some of which is --17 18 some of it was actually older cut-over but we didn't 19 include in the total cut-over measurement and we went 20 up and off the map. 21 MADAM CHAIR: Mr. Benson, does this road 22 you travel have a name? 23 THE WITNESS: It might have, but I don't 24 know what its name was.
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We went off the map back

THE WITNESS:

1	down and finally over to the Ecclestone Road - I do
2	know the name of that road - and down that road.
3	The only other photograph I think in the
4	series will be on this side of the photograph and it's
5	really just that start of the Gordon Cosens Forest
6	Management Area.
7	MS. SWENARCHUK: Q. This is now slide
8	117.
9	A. Slide 117 is of that one-year cut
10	area from the clearcut exercise prior to the cut, and
11	this is from a satellite photograph different than the
12	one that we just observed and this is enlarged
13	somewhat. This was taken in 1989, the satellite image,
14	and it shows the area before it was harvested. So it
15	indicates the pattern of the roads that have been
16	developed or built ahead into the cut area.
17	If you try to relate to one of the
18	obvious corners in the road it will help you to observe
19	the or relate to the next slide.
20	Well, it might help you
21	Q. Perhaps you better
22	A. If you relate to that point right
23	there you can see there is a road that actually comes
24	up here and across. That point is the same as that one
25	right there. So you can see where the harvesting has

1 occurred since the roads were put in. (indicating) 2 MR. FREIDIN: Which photograph is that? -3 MS. SWENARCHUK: O. This is now I believe slide 118; is it not? 4 5 A. That's correct. 6 Q. Now, this is described in the slide list as a harvest area that is larger than what is 7 8 shown in the clearcut exercise and it refers to a 9 number of maps. 10 Could you explain what you mean by that 11 description please, Mr. Benson? 12 It would be probably easiest if I Α. 13 just showed it on the map--14 Q. As you wish. 15 -- at this point in time. It's better 16 to do that. So I will need the lights back on, please. 17 MS. SWENARCHUK: Madam Chair, these are 18 the clearcut exercise maps. 19 Q. Are they not, Mr. Benson? 20 A. That's correct. 21 MS. SWENARCHUK: So this is presumably 22 already an exhibit from MNR's Panel 17B. 23 MADAM CHAIR: Were all the maps made an exhibit; does anyone recall? 24 25 MR. FREIDIN: I believe they were all.

1 My recollection is that they were all made exhibits. 2 MADAM CHAIR: They wouldn't have been 3 given separate exhibit numbers? 4 MR. FREIDIN: They probably would have all been given a separate exhibit number, but I don't 5 6 have my records here. . 7 MADAM CHAIR: We never entered 57 8 separate maps with separate numbers. 9 MR. FREIDIN: We didn't have 57 different 10 maps. 11 MADAM CHAIR: How many maps did we have for the clearcut exercise? Let's leave that now and 12 13 perhaps someone could tell us what the number is. 14 MR. CASSIDY: There were a whole series 15 of maps. I have got my list of the exhibit list. If 16 you can tell me what the name of the map is I might be 17 able to tell you if it was an exhibit over the dentist drill. 18 19 MS. SWENARCHUK: I can't see the name on 20 it. 21 MR. MARTEL: How many maps were 22 exhibited, Mr. Cassidy, on that little exercise? 23 MS. SWENARCHUK: With respect to ours, Madam Chair, what we have done is prepared a list in 24 25 which the map numbers which -- each one is marked on

1 the relevant maps and are organized by management unit, 2 and my proposal would be that we give this list an 3 exhibit number and that the maps will be individually 4 marked all relate to this exhibit and have their own 5 individual 2A, 2B kind of numbers attached to them. 6 MADAM CHAIR: How many do you have in 7 total? 8 MS. SWENARCHUK: We have 57 in total. We 9 have them all here. We are not intending to display 10 each one of them, but they will all be available for 11 view if you want to look at them at any time. 12 The one exhibit that I suggest we make is 13 the list that is a key to all of those maps. 14 MADAM CHAIR: All right. 15 MR. CASSIDY: To answer your question, 16 Mr. Martel, I have counted 40 maps that were made 17 exhibits. 18 MR. MARTEL: Thank you. 19 MADAM CHAIR: Let's get this straight, Ms. Swenarchuk. You are suggesting that for -- that 20 this be made Exhibit 1624, this three-page list? 21 22 MS. SWENARCHUK: That's right. 23 MADAM CHAIR: How would you divide the 24 maps so we can pull them out separately? 25 MS. SWENARCHUK: The maps have currently

1 been organized to be conveniently available to Mr. 2 Benson for his testimony. I think that when he is 3 finished, my suggestion would be that we reorganize them by management unit. 4 5 MADAM CHAIR: For example, now under the 6 Domtar/Armstrong FMA 1A/5217 is a map? 7 MS. SWENARCHUK: That's right. And it 8 corresponds to an area shown in photo No. 14. All 9 right. 10 MADAM CHAIR: Then this list will become 11 Exhibit 1624 and it is a three-page list of the 12 management units and the maps that will be discussed in 13 Mr. Benson's evidence for each of those units. 14 MS. SWENARCHUK: That's right. 15 ---EXHIBIT NO. 1624: Three-page list of the management units and the maps that will be 16 discussed in Mr. Benson's evidence for each of those units. 17 18 MADAM CHAIR: And you undertake the job 19 of enumerating them separately with some sort of a 20 lettering? 21 MS. SWENARCHUK: That has already been 22 done on each one of them. What we have here is a 23 record of the numbers that are on those individual maps 24 organized by management unit. 25 MADAM CHAIR: All right. Let's see how

1	that goes. It is handier for the Board when we are
2	making our notes to mention one exhibit. Let's see how
3	we do in our note taking when we come to referring to
4	specific maps.
5	MS. SWENARCHUK: What I would suggest
6	might be most useful for you would be to record the map
7	numbers that are here in your notes and we will
8	indicate those map numbers to you. I think it will
9	work.
10	MADAM CHAIR: Okay. Let's just start
11	going and see what happens.
12	MS. SWENARCHUK: We have a three-page
13	list of management units and maps of the units prepared
14	by Mr. Benson. I guess we can point out that it is a
15	list of management units and 57 maps in total.
16	MR. CASSIDY: You still have to identify
17	the map. I will still identify that map if you want me
18	to. Tell me the name of that map.
19	THE WITNESS: There is no name on it.
20	MS. SWENARCHUK: There is no name on it.
21	MR. CASSIDY: All right.
22	MR. FREIDIN: It would be an exhibit, Mr.
23	Cassidy, from the Gordon Cosens unit, Map No. 2 detail
24	1987-88 harvest map.
25	MR. CASSIDY: My records indicate. Madam

1 Chair, that will be Exhibit 1014C. 2 MADAM CHAIR: Thank you. 3 MR. FREIDIN: Thank you, Mr. Cassidy. 4 MR. CASSIDY: You're welcome. 5 MADAM CHAIR: That corresponds with the 6 3A under than Gordon Cosens? 7 MS. SWENARCHUK: No, we aren't --8 MADAM CHAIR: See, our confusion, Ms. 9 Swenarchuk, when we go through our notes we need to 10 have one number, we can't look at four different numbers. We need a number to look at or we can't get 11 12 very far. 13 MS. SWENARCHUK: I was only pointing this 14 out now while Mr. Benson got organized. We are not at 15 this time using any of these maps. 16 MADAM CHAIR: What map is that? 17 MS. SWENARCHUK: That is the clearcut 18 exercise map prepared by the Ministry. 19 MADAM CHAIR: Which is not on Exhibit 20 1624? 21 MS. SWENARCHUK: No. 22 MADAM CHAIR: This is Exhibit 1014C? 23 MR. CASSIDY: That's what my records 24 indicate. 25 MADAM CHAIR: Okay, let's go.

1	MS. SWENARCHUK: He is going to compare
2	it now to a set of satellite photographs and we will be
3	identifying and exhibiting these collages.
4	MADAM CHAIR: All right.
5	MS. SWENARCHUK: Q. Go ahead, Mr.
6	Benson.
7	I think what we will have to do to make
8	it somewhat organized is ask you to identify these two
9	collages and mark them as exhibits before the
10	discussion proceeds.
11	Can you describe, first of all, what this
12	one is? (indicating)
13	A. I tried to put together the pictures
14	of the satellite image that have been enlarged to give
15	a better view of the overall areas so we could see what
16	we have, and I did that for the first one here which is
17	on this rather sickly green paper and it's of a 1986
18	satellite image of the area that I will be looking at.
19	Q. This is within the Gordon Cosens
20	management unit?
21	A. The area we are looking at would be
22	in the Gordon Cosens management unit.
23	MS. SWENARCHUK: Madam Chair, would this
24	then would be 1625?
25	MADAM CHAIR: That's correct.

2	satellite image of the Gordon Cosens management unit.
4	MS. SWENARCHUK: The next one presumably
5	will be Exhibit 1626.
6	THE WITNESS: Which is a photo mosaic of
7	the same area, only the image in this case is from
8	1989. So there is a three-year difference between when
9	the images were taken.
. 0	EXHIBIT NO. 1626: Collage depicting a 1989
.1	satellite image of the Gordon Cosens management unit.
. 2	MS. SWENARCHUK: Q. I think you can
.3	proceed now.
. 4	A. So what I want to try to illustrate
.5	to you I don't think this will be too difficult, I
.6	hope not. This one
.7	MS. SEABORN: Could you speak up, Mr.
.8	Benson.
.9	THE WITNESS: I will try my best. The
20	photograph on my right, the one from 1986, this
21	particular area here is the same one that was shown in
22	the slide. You can see the road system that went down.
23	That same area in 1989 is shown here. The road is
24	going down, the road is going across and you can't
25	quite see the corner here quite as well, but this is

1 the same area only three years after the cut. 2 That's one way I get a relationship 3 between what the colours show and how long it had been 4 disturbed, but you can't really get a good tie in because it is going to vary by site and by region as to 5 6 how fast it comes back to vegetation. 7 Now, the point of this particular one is 8 that when I looked at this this was interesting because it showed me where the cut-over exercise was, but in 9 10 addition there was one change from the clearcut 11 exercise and it is very difficult to relate this map to 12 it. 13 MR. FREIDIN: We are now looking at 14 Exhibit 1014C which is the map from the clearcut 15 exercise. 16 MADAM CHAIR: Very good, Mr. Freidin. 17 You are keeping this all straight for us. 18 MR. FREIDIN: Well, I am going to have to 19 read the transcript one day. 20 THE WITNESS: The basic difference is 21 that since the clearcut exercise, which was the 22 clearcut area for the 1987-88 harvest, some of that 23 area has since been harvested. 24 This area of the stands were harvested

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and actually it was actually harvested north of there

1 too, so that I could really include that as part of the 2 contiguous clearcut. 3 Now, it is a little bit hard to relate 4 that because you are looking at different maps and it's 5 hard to put the road in place, but in essence there should be a dark green spot. 6 7 Where are we? It's even harder when you 8 are upside down. 9 There should be a dark green spot in this 10 area in here. (indicating) 11 This particular spot here, at the point 12 of my little finger, is the remnants of it and all this 13 portion is cut. So I think it indicates that the 14 clearcuts continually expand. They are sort of -- our 15 present system just builds on the past clearcuts which 16 keep pushing ahead one year after another. 17 You can see the same effect perhaps much 18 clearer on one other example on this photograph. On 19 this one, the 1986 photograph, you can clearly see the 20 forest comes out and up--21 MS. SWENARCHUK: This is Exhibit 1625. 22 On this exhibit number which is... Α. 23 1626, I believe. Q. 24 You can see that that area has been

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harvested since; in other words, the cut keeps

1	progressing along. So rather than making it one large
2	contiguous clearcut, which I think could be better done
3	if you tried to harvest smaller areas, spread them out
4	to break up the clearcut size and to create more a
5	diversity of age classes within that forest.
6	That's it for this.
7	MADAM CHAIR: All right. Thank you, Mr.
8	Benson.
9	MR. MARTEL: I guess, Mr. Benson, what
10	worries me about all of what you have been attempting
11	to show us is the difficulty of putting it together.
12	Surely in 1990 and having been doing
13	forestry for years in Ontario there has got to be a way
14	that is much more simple and the records much more
15	precise so one can identify what in fact has gone on
16	over a ten-year period.
17	I mean, it is like putting a jigsaw
18	puzzle together. I mean, it sounds, quite frankly,
19	insane to have to do it that way, and maybe I am
20	missing something, but I tell you that seems like back
21	in the dark ages, quite frankly, trying to put this
22	together. I am amazed that we are not much more up to
23	date and modern than that.
24	THE WITNESS: Well, I guess there is two
25	problems to that. There might be different pieces for

1 the puzzle around that aren't available. 2 MR. MARTEL: It should be available. 3 THE WITNESS: Or maybe they have lost the 4 pieces of the puzzle; I have no idea. 5 It does certainly indicate a particular 6 problem, and I'm not too sure how to say this, but 7 related to working as a forester for an environmental group, it does sort of taint you I found in the way 8 9 that you are... 10 MR. MARTEL: Perceived. 11 THE WITNESS: ...perceived, yes, which I 12 think is an indication that we have some growing up to 13 do as foresters and I speak for myself too. 14 I had to grow up working with these 15 people to a certain extent to appreciate their particular viewpoint and I hope they could appreciate 16 17 some of my viewpoints, too. 18 MR. MARTEL: But surely when you are 19 doing things on Crown land, I don't know care whether 20 someone has a licence or not, the information that 21 should be made available should be simply upfront. 22 I mean, that is Crown land that we give a 23 licence to somebody to operate on. Surely that 24 information has to be available to anyone that wants to

look at it in a manner that makes sense. I don't mean

1 where you can banboozle the public with reams of material, but a realistic look at what's going on 2 3 should be available. 4 THE WITNESS: I agree with you entirely 5 and I was leading up to -- I was surprised in a way that more information wasn't made available to the 6 7 different organizations to illustrate how management 8 really is being carried out within the province rather 9 than to have to conduct a survey on your own to try to 10 dredge up material to try to figure out what's going 11 on, why it wasn't presented to these people as freely 12 as possible. 13 In fact, why would they have to hire me 14 to interpret information. It gave me a job, but I 15 don't think it really should have been necessary. 16 MADAM CHAIR: Well, Mr. Benson, is it 17 your position that the information in this format and 18 to the detail that you need it for this project wasn't 19 available? 20 I mean, if it were available you wouldn't 21 have had to do your own cut and paste collages, if 22 information were collected and packaged in that way, 23 but it's not. 24 THE WITNESS: I think it probably -- I 25 don't know whether the Ministry would have it all

1 available. Spruce Falls probably does have it 2 available. They have always kept fairly good records I 3 think of their own work. Whether they wanted to make 4 it available would be up to that particular company. 5 MADAM CHAIR: Did you ask them for it? 6 THE WITNESS: No, I didn't ask Spruce 7 Falls for their information. That also includes other 8 companies areas and you would have to get the same 9 information from those company areas. 10 Why I didn't ask the companies is because 11 I felt it was Crown land and it should be information 12 that is available through the Crown. 13 MS. SWENARCHUK: Q. Just on that 14 specific topic, Mr. Benson, you indicated in a number 15 of chapters in Volume II, management units for which 16 cut-over maps were available and were not available at 17 the Ministry's offices. 18 For example, I believe, am I correct, 19 that for Domtar/Armstrong and Mattawin/Dog River and 20 Kapuskasing management units the Ministry did not have 21 cut-over maps? 22 Α. That's correct. 23 And there are a number of other 24 chapters in your report for which it is unclear and

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then a number of other areas including the Gordon

1	Cosens management unit where the Ministry did have
2	cut-overs maps?
3	A. That's correct. The problem would
4	have been I was trying do the study in a confined
5	time period and as uniformly as possible and when we
6	went to the satellite photographs it seemed to be one
7	way to get the information we wanted in a uniform
8	manner. As primitive as it was, it seemed to be the
9	most effective for getting the job done.
10	MR. MARTEL: How can you ever put
11	together I am not talking about Forests for
12	Tomorrow, I am talking about the Ministry now.
13	If we do everything this way, how can we
14	ever get the base data for the materials that's
15	necessary to make positive decisions with?
16	I mean, it is like a land mine. You are
17	walking around in 1990 trying to put pieces together
18	that should have been put together 25 years ago.
19	We have been preparing for this hearing
20	for 13 years. One would have thought at least we would
21	get all of the maps and all the management units ready
22	to say here is where we are going.
23	When one thinks that Europeans have been
24	forestry for 200 years successfully, one wonders
25	well, no, one doesn't wonder why maybe people are

1 concerned. I think it becomes evident why people --2 part of the reason why people are concerned is you 3 can't even seem to put the picture together to meet 4 peoples' expectations. It is almost like trying to defend the indefensible because it's not there, or if 5 6 it it is fragmented. 7 MS. SWENARCHUK: I think, Madam Chair, 8 Mr. Martel, Mr. Benson outlined in a number of the 9 chapters of Volume II again difficulties in obtaining information and also - and I won't take him through 10 11 this in direct testimony - but differences, except in a 12 couple of examples, of discrepancies within the plans 13 that he found with regard to the information that was 14 there and I will leave that to your leisure reading. 15 MR. MARTEL: I noted it when I read the 16 material, Ms. Swenarchuk, about the difficulty Mr. 17 Benson had getting material, the inconsistency in the 18 material. I mean, Mr. Armson told us about that two 19 and a half years ago, about inconsistency, about things in MNR's definition and wording and the whole sphere. 20 21 I worried about it when I read this 22 material since this asset belongs to the Crown, why we 23 are having difficulty - anybody - getting the 24 information.

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MADAM CHAIR: Mr. Benson, did you satisfy

1	yourself that you had explained why you needed this
2	information, and had you consulted with the Ministry
3	and the companies with respect to other types of
4	information they might have given you to look at the
5	same set of data that you wished to examine?
6	THE WITNESS: We didn't deal with the
7	companies at all. We just dealt with the Ministry in
8	order to get information.
9	I have been dealing with the Ministry for
10	a number of years gathering information for different
11	groups or collecting information for different groups,
12	so that I already have sort of preconceived ideas as to
13	what I can obtain and what I can't obtain and as to how
14	I must obtain certain information.
15	For example, the maps themselves. I
16	believe earlier in the study that was done by Ken Hearn
17	that Forests for Tomorrow were doing, he tried to
18	obtain maps of the area and the answer to that was
19	that I think even my name was mentioned in that
20	where I was to go to one office and copy the maps,
21	trace out the maps to make copies for Ken Hearn, which
22	again I said no to that.
23	MADAM CHAIR: All right.
24	THE WITNESS: Maybe I can answer that one
25	question that you asked on your list of questions about

	, ,
1	whether the information was available or wasn't
2	available.
3	I only know of one case for sure where
4	the information was available and wasn't given to me,
5	and I can only presume in the other cases that people
6	were direct snf straightforward with me and honest
7	about it and that the information was truly not
8	available.
9	It doesn't really make the situation any
10	better. In some cases it makes it worse, I think, but
11	all I can say is that in one situation alone was the
12	information there and withheld purposely. In the other
13	cases I would have to say that as far as I know the
14	information was not available.
15	MS. SWENARCHUK: Q. I take this was
16	slide 118, in which case I think we could proceed to
17	the next slide which I think would be photo 123.
18	A. Perhaps before you turn the lights
1 0	out again I could just introduce one more man from the

A. Perhaps before you turn the lights out again I could just introduce one more map from the clearcut exercise.

21 Q. Sure.

MADAM CHAIR: Mr. Cassidy.

MS. SWENARCHUK: Mr. Cassidy will find

24 the number for us.

20

MR. CASSIDY: Excuse me? I was looking

1 at the satellite inventory. 2 MS. SWENARCHUK: Q. Could you tell us 3 the name of this clearcut exercise map, please, Mr. 4 Benson? 5 A. This is map No. 3, contiguous harvest 6 map. 7 MR. CASSIDY: Which unit? 8 THE WITNESS: For the Gordon Cosens. 9 MR. CASSIDY: My records indicate that it 10 is Exhibit 1014D. 11 MADAM CHAIR: Thank you. 12 MS. SWENARCHUK: We are seeing here the 13 superlative Industry record keeping. 14 MR. CASSIDY: I am sorry? 15 MS. SWENARCHUK: We are seeing the 16 superlative Industry record keeping before our eyes. 17 MADAM CHAIR: It is a compliment, Mr. 18 Cassidy. 19 MS. SWENARCHUK: Yes, it is. 20 MR. FREIDIN: I am not sure he is right, 21 I am looking at his record book. 22 MR. CASSIDY: Well, do you want to talk 23 about records. 24 (laughter)

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THE WITNESS: This is the ten-year

1	contiguous cut-over map for the Gordon Cosens FMA area
2	and one reason why
3	Q. Could you speak up again, please. It
4	was the Eccelstone Stone.
5	A. That's E-c-c-l-e-s-t-o-n-e Road.
6	The area of that ten-year cut is roughly
7	20,000 hectares, perhaps a bit less. On this map the
8	major breaks within the harvest area were marked with
9	blue, the uncut linear breaks were marked with red that
10	were 30 to 100 metres wide. The ones that were 100 to
11	200 metres were marked with green.
12	Again, I think from my point of view of
13	the management of the area this essentially becomes one
L4	large clearcut or one age class. It is within that
15	20-year age class category.
16	I think that an area like that could be
L7	cut more in a modified fashion to break that cut up
L8	because the reserves that have been left have not
L9	broken that area up sufficiently. There is quite a
20	distance between reserve areas, in some cases. The
21 -	scale of this is one inch to a mile.
22	MADAM CHAIR: How much longer would be
23	the time period before you had different age classes?

two age classes you would have to cut it over 40 years

You are saying if you wanted more than

24

1 as opposed to 10? THE WITNESS: That's right. 2 MS. SWENARCHUK: Q. What would be the 3 pattern that would result then over that time period? 4 If you had --5 Α. 6 Cutting in the manner that you are 7 advocating. How would the cutting patterns and openings look, hypothetically speaking, after 40 years, 8 or even after 10 years as compared to this one? 9 1.0 A. Well, it would depend upon the type 11 of harvest method they used, whether they use strips, blocks or some modified method of cutting. It would 12 depend upon particular method used for this area, 13 14 whatever method worked the best for this area, 15 whichever method they found worked the best for this 16 area. 17 Would there be more standing timber 18 in older age classes left in the area? 19 A. Well, there would have to be because 20 if you didn't cut the area all at once you would have 21 to stretch out some of that older timber over a longer 22 time period, which is another problem you can have

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because sometimes you cannot stretch that older timber

over that time period and you might have to harvest it

as one large block based on its age or if it's damaged

23

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1	by the spruce budworm or wind damage or fire even.
2	MR. MARTEL: But reasons could show for
3	that
4	THE WITNESS: That's right, yes.
5	MR. MARTEL:in the plan.
6	THE WITNESS: Oh, yes. They should show.
7	MS. SWENARCHUK: Q. Now, you are
8	advocating the use of smaller cuts overall. Should the
9	Board do you expect that the older age classes could
10	in the main be stretched out sufficiently to allow a
11	pattern of smaller cuts to be used?
12	A. Again, that would vary for each
13	particular management unit.
14	That's right. That's another problem we
15	haven't really approached because if you get into
16	modified cutting you can't cut all the oldest age class
17	at once and can you apply a modified cut pattern
18	without cutting too far into the under-age classes or
19	can Industry still use those under-age classes. That's
20	another restriction or constraint on how many of the
21	modified cut-overs areas you can set up.
22	MADAM CHAIR: Ms. Swenarchuk, should we
23	take our afternoon break now?
24	MS. SWENARCHUK: Yes.
25	MADAM CHAIR: Is this convenient?

1	MS. SWENARCHUK: I think so.
2	MADAM CHAIR: We will be back in 20
3	minutes, Mr. Benson.
4	Recess taken at 2:40 p.m.
5	On resuming at 3:00 p.m.
6	MADAM CHAIR: Please be seated.
7	MS. SWENARCHUK: 123, is that what we
8	just finished or are we starting with that?
9	MADAM CHAIR: We are just introducing
10	slide No. 123.
11	MS. SWENARCHUK: Thank you.
12	THE WITNESS: Slide 123 is an enlargement
13	of a slide that was shown previously and the only thing
14	that I can point out on this to make it clearer is I
15	mention the one lake that was cut around and you can
16	see where it was harvested up to the shoreline from the
17	satellite photograph.
18	You can also notice on this cut-over
19	area, too, that it is pink with some dark green and
20	when I show you the actual site it should be more
21	apparent as to why that is dark green. It's really
22	some poplar that's been some residual on that site.
23	MS. SWENARCHUK: For the record, Mr.
24	Benson has been pointing to a yellow sorry, a pink
25	area in the centre right of the photograph.

1	Q. This is now slide 130.
2	A. This is in a lowland area off the
3	road that I showed you coming down through the Gordon
4	Cosens Forest. This particular area is a lowland area
5	where there is a fair bit of rutting and you can see
6	where the ponding of water has occurred and where the
7	ruts have occurred.
8	As I said, rutting was not uncommon to
9	find in a management unit. It is probably a little bit
10	easier in a unit like this because you have more wet
11	areas, so more chance of rutting occurring and ponding
12	of water to occur.
13	MR. MARTEL: You are saying those areas
14	with water are not natural, then, they have been
15	created by ponding?
16	THE WITNESS: They have been created by
17	MR. MARTEL: By equipment.
18	THE WITNESS:skidder tires.
19	MR. MARTEL: Okay.
20	MS. SWENARCHUK: Q. This is now slide
21	135.
22	A. 135 was an area that was being
23	scarified within a hardwood residual area where the
24	spruce has been cut or removed from and they are using
25	a blade scarification method.

1	In this particular case, the blade
2	scarification removes the organic matter and topsoil
3	from the bedrock - that's bedrock that you see there -
4	and cleared a path through this particular area right
5	to the bedrock mainly because the soil was not that
6	thick on that particular point.
7	It was a mistake by the operator. In
8	this case, he seemed to repeat it more than once in
9	this particular site. It illustrates the change in
10	site conditions that can occur over a rather short
11	distance and trying to apply one type of treatment to
12	an area.
13	Q. This is now slide 144.
14	A. Slide 144 is an older cut-over that
15	appears to have been sprayed, as far as I can
16	determine. It also appears that it was burnt. Whether
17	it was burnt before it was planted I don't know, but
18	there is a certain amount of regeneration that has come
19	on it.
20	You can see conifers here and there, but
21	for the majority of it I really did not see enough
22	conifers that I think would justify spraying that
23	particular area.
24	Now, there certainly were spots within
25	that where there were more conifers that if it had to

- be sprayed it might be justifiable to do it, but for
 spraying the whole area, I don't think it was
- justified.

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This is the area around that small lake
that I was showing you and you can see the lake in the
background, you can see the standing timber still on
the far side of the lake and you can see the residual
hardwood on this side of the lake. Some of it has been
knocked down because this site was also scarified,

Q. This is slide 147. Now, Mr. Benson, you have indicated in the slide description that this area was cut over to the lake and you discussed earlier with Madam Chair and Mr. Martel the Fish Habitat Guidelines.

cutting right to the lake in this site, for example?

A. Well, with the size of clearcuts that

What is your view of the practice of

are being used I don't think they should be cutting

20 right to the lakes.

light scarified.

Q. Why is that?

22 A. Because of the possible run off you
23 can get from a larger clearcut, they could go directly
24 into the lake.

Q. This is slide 149.

Τ.	A. The same take, just a different spot
2	within a location showing the landing, and I suppose
3	some of the tertiary roads of the area by that small
4	lake. You can see the reserve on the far side of the
5	lake is not that thick to begin with.
6	Now, this area has been planted and there
7	are planted trees on that landing. It was either
8	planted earlier in 1988 or perhaps '87. The same area
9	again, tertiary roads, pretty well rutted and a great
10	deal of ponding in that area.
11	Q. This is slide 150. Now, there was a
12	creek by that small lake and there was a reserve left
13	along this particular creek; however, the road also
14	came down beside the lake on the west side of the lake
15	and crossed this creek.
16	On the lower right of this photograph you
17	can see a fair bit of gravel and sand deposit and you
18	can see where some of it enters into the stream.
19	Q. This is now slide 154.
20	MR. MARTEL: What was the previous one?
21	MS. SWENARCHUK: The previous slide of
22	the creek was slide 153. Mr. Benson is now discussing
23	slide 154.
24	THE WITNESS: A reserve was left on this
25	creek on both of sides of the road that was put

1 through. An attempt was made to fix up the ditch 2 beside the road where the ditch came down by the bridge 3 in order to present some of the --4 MS. SWENARCHUK: Q. One moment, Mr. 5 Benson. We are going to have to go back and get these 6 slide numbers. This is slide 151 I believe; is that 7 correct? MADAM CHAIR: It is on my list, Ms. 8 9 Swenarchuk. 10 THE WITNESS: That's 151. MADAM CHAIR: And this is 156. The next 11 one is 156. 12 MS. SWENARCHUK: This is 151, yes. Yes, 13 14 this one is now 156. 15 MADAM CHAIR: This is 151; isn't it? MS. SWENARCHUK: I'm sorry, yes. 16 17 Q. Would you explain then what you are 18 depicting in slide 151, Mr. Benson? A. Well, as I said, it is beside the 19 20 bridge that was in the previous slide and it's at a point where the ditch comes down beside the bridge and 21 the water would flow into that small creek. 22 23 It shows the effort there to try to prevent erosion through the ditch where the rock fill 24

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has been put into the ditch itself, and the next slide

just shows further up and alongside the road.

Q. Now, this is 156; isn't it?

A. Correct.

Q. And what does this depict?

A. In this particular case what it is showing is the erosion in the ditch beside the road from a relative flat area, but fairly fine textured

showing is the erosion in the ditch beside the road from a relative flat area, but fairly fine textured soil and this ditch erosion that is going down into the stream with a reserve which, in turn, is going into the lake with half a reserve and I'm not too sure of the logic of the whole thing. Why some have a reserve and some don't, particularly when the stream with reserve flows into the lake without the reserve.

extent the point I was making earlier this morning concerning the effect of erosion, a little more dramatic than actually occurs, but an effected ditch is an intermittent stream and it's collecting water and it's putting water into the regular stream, but the erosion is coming through the intermittent stream, not through the regular stream itself.

- Q. This is now slide 155.
- A. This is the same area and, again, it shows a pattern of erosion where water on a relatively flat area is causing a fair bit of erosion beside the

1	road. This, again, is in the ditch with the cut-over
2	to the lake to the right and behind those residual
3	poplars.
4	Q. This is now slide 159.
5	A. This is an older cut-over. Again,
6	I'm not too sure of the actual age, but you can see
7	some of the residual conifers that were left in this
8	particular area where there are very small patches and
9	usually the smaller sizes that were growing in the
.0	particular area, what I would classify as being
.1	non-commercial.
.2	Q. Now, you said this is an older
.3	cut-over, what's its condition as it regards
. 4	regeneration?
.5	A. I can't recall this particular one,
.6	what the condition of that area was and I didn't note
.7	it down there so I don't have that information with me.
.8	Q. Is there any indication of
.9	regeneration in the slide?
20	A. Well, I'm sure there is some
21	regeneration in there, it is just a matter of how much
22	there would be and what type of regeneration it is.
23	Right where we are looking, there is a
24	fair bit of grass coming up and some sedge. It's
25	probably a bit of a wetter area in the foreground where

- on the left you are getting into the bedrock and it

 gets dryer up towards the top I would think. I would

 suspect there is some regeneration. It is really just

 a matter of where it is and how much there is in that
 - Q. Slide 162.

area.

- A. This particular case is an access of road that has been washed out. Again, it's not just in this particular unit, but other units where it is not too difficult to find access roads that have washed out. I was pointing this out. I think this was in response to another question that was posed by the Chair.
 - Did I consider this matter detrimental from the point of view of the environment or from safety, and I would have to say I consider it from both points of view. From the safety aspect, if it's not marked, and from the environmental point of view when you consider the amount of erosion that occurs with the washout.
 - Q. This is now slide 166.
 - A. This was an area that was sprayed with Vision and, again, I wasn't too sure why this particular area was sprayed. This is in the Cargale Township area. I don't know the exact location except

- 1 it was along the Ecclestone Road and it was posted as 2 being sprayed with Vision. 3 Why I say I don't know it was sprayed 4 over the whole area is because when you look at the 5 area I didn't see a great deal of conifer in some 6 areas, it was either sedge or protected by the spraying 7 program itself. 8 Now, admittedly the techniques were crude 9 that I was using. I was only using my own observation 10 of the area and I certainly couldn't observe the whole 11 area that was sprayed, so I can only give you my 12 impression of that. 13 We didn't do any sampling or put any 14 sampling plots in these areas to determine how much 15 regeneration was there on this area that was being 16 sprayed. So the interpretation is merely my impression 17 or my view of this area. 18 MADAM CHAIR: Mr. Benson, on the previous 19 slide, No. 162, do you know if that road had been intentionally abandoned or was it rendered to be 20 21 passable?
 - THE WITNESS: I don't know whether it

 would be -- whether it has been intentionally abandoned

 or not. I believe this one continues on and links up

 to what's called the Winter Road in that area.

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The roads are expensive to build b of the clay and because of the difficulty of fin enough gravel convenient to put onto the road.	ding So I'm
	So I'm
3 enough gravel convenient to put onto the road.	
	ned or
4 not too sure whether this was meant to be abando	
5 not.	
If it was meant to be abandoned, t	hen I
7 would suggest there are ways to abandon it and n	ot to
8 have it cause erosion and siltation as a result	of the
9 road washout.	
MADAM CHAIR: Thank you.	
MS. SWENARCHUK: Q. This is 1616.	Now
12 slide 170.	
13 A. This, again, was another area	that
was sprayed in Cargale Township area. The same	area as
15 the no, I'm sorry, it wasn't.	
In this case the hardwood includes	some
oak that was sprayed and killed and I guess it's	a
question of when I saw that I thought: Well, it	is
somewhat unique to have a stand of oak in an are	a like
20 that and why spray and kill it even if it is tak	en up a
21 small portion of the area. Perhaps it would hav	
better to leave it rather than to try to convert	
23 conifer as the rest to make it the same as th	
of the area.	

Q. This is now slide 180.

4.	A. Since 180 is at the entrance to the
2	Gordon Cosens Road, the southeast entrance, and there
3	is a sign just to the left welcoming you to the Gordon
4	Cosens Forest which I thought was sort of ironic,
5	there's a nice sign beside a small little lake that has
6	been clearcut around.
7	I think if you take a look at one of the
8	other photographs you get a there is a picture of
9	the sign and the lake itself.
10	Q. That's slide 179, I believe. Now, I
11	have some questions with regard to the Gordon Cosens
12	Forest before we move on to this slide, Mr. Benson.
13	MS. SWENARCHUK: Madam Chair, Mr. Martel,
14	the chapter on the Gordon Cosens Forest begins at page
15	199.
16	Q. Mr. Benson, with regard to your
17	report at page 201, you have said in the last paragraph
18	that:
19	"Although silvicultural prescriptions are
20	based on the forest eco-system
21	classification, the majority of the
22	silvicultural work relies on clearcuts.
23	Modified cutting methods including block
24	strip and seed tree cuts are prescribed
25	in the silvicultural prescriptions, but

1	only a small amount of seed tree cutting
2	has occurred."
3	My question is, was the amount of
4	modified cutting actually done less than you expected
5	from reading the silvicultural prescriptions?
6	A. For this unit it was less than what I
7	thought it would be, yes.
8	Q. One further question. On page 204,
9	(a), paragraph (g), you said:
10	"Silvicultural methods and harvesting
11	cause site damage. Some sprayed areas
12	do not appear to have sufficient conifer
13	regeneration to justify the spraying."
14	Now, you showed a couple of slides with
15	regard to the spraying question. I would like to know
16	if you have anything more to add to that comment with
17	regard to the spraying, first of all?
18	Did you see any other areas in the Gordon
19	Cosens Forest where you questioned the spray?
20	A. No, I pointed out two different areas
21	there where I made that observation. Other than that,
22	I can't say that I picked out any other areas that I
23	could say were either sprayed for sure or that I would
24	disagree with it having been done.
25	Q. All right. Those are my questions

- from this area. We can go on with the slides
- 2 pertaining to Hearst. I believe the first one is slide
- 3 358.
- A. If I recall, I don't have a copy of
- 5 the photos, but I don't have you have the same picture
- 6 as what you are looking at.
- Q. Do you want to see the print?
- A. Right. In any case, if you don't
- 9 have the print that looks like that, then you have the
- wrong print.
- 11 Q. I see. We will sort that out later.
- Go ahead with what's on the screen.
- A. One area looked at in the Hearst
- 14 management unit is what was formally part of the
- northern management unit which I was associated with at
- one time, and on this management unit, here is the
- 17 Shannon Lake, this is known as the Shannon Road which
- was partially paid for by the Crown, partially paid for
- 19 by timber companies operating in the area.
- One area of interest to me was what had
- 21 happened to an area up here that was a Sankey
- 22 wilderness area and also over here where it was the
- 23 Sankey research area where those small strip we were
- 24 that I was talking about before. The majority of the
- 25 blowdown that I had talked about before occurred in

1	this portion of the management unit.
2	So what we looked at here was going up
3	this road over to the Sankey wilderness area and in to
4	find it and sort of look at some of the other
5	operations, older operations within that portion of the
6	management unit.
7	This particular slide we are looking
8	at it's from 1978 and it's indicating a project that
9	involved the planting of spruce on a scarified area.
10	It was planted in 1969, was scarified with drums in
11	1969 and an aerial spray in 1976, so that area is
12	roughly seven years old at that particular time.
13	That's an area adjacent to Shannon Lake.
14	Q. This is slide 363. We are now
15	looking at slide 364.
16	A. In this slide, this is opposite from
17	where that sign post was at that particular time in
18	1978, and indicates the success of that plantation.
19	Now, you can see some spruce come up, but
20	it certainly was not as successful as what it was hoped
21	to be. I can say that because I was involved in the
22	planning for that particular what was supposed to be
23	a plantation, and it did not turn out as well as what
24	we had expected.

At that time, certainly when we had

1 planned for a plantation the idea was not -- we were 2 trying to get as pure a plantation as we could. That 3 basically was the objective of trying to plant an area 4 at that time. 5 You can see some of the regeneration that 6 has come up on the lower right of the screen and there 7 are other spruce back in there, but not nearly as many 8 as we would like and, incidentally, there was also a 9 fair bit of natural regeneration that came in and 10 mortality of the planted trees was quite high. 11 This is now slide 366. 12 A. In comparison, this is a slide taken 13 in 1987 indicating seven year old black spruce grown in 14 New Brunswick actually on part of K.C. Irving's 15 licenced area on private land. 16 Compared to the seven year old spruce 17 from the previous slide, there's certainly a difference 18 in the growth that has been achieved by these two 19 different areas. 20 Q. Now, Mr. Benson, to what do you 21 attribute these differences in growth? 22 Well, your productivity is higher on 23 the land that K.C. Irving is growing his trees on. 24 That's the major reason I would say. And K.C. Irving

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has a very good plantation method arranged for growing

1 and producing plantations on his private land in New 2 Brunswick. 3 MADAM CHAIR: Mr. Benson, did you say 4 this plantation is seven years old? 5 THE WITNESS: Seven years old, right. 6 MS. SWENARCHUK: Q. This is now slide 7 367. 8 A. In a comparison, again, this slide --9 what is the number of this one, Michelle? 10 Q. 367. 11 A. This slide also shows the 12 seven-year-old plantation. In this case, in Georgia. This slide was taken in 1988 and it was planted at the 13 start of 1982 at the start of the growing season; hence 14 15 the seven years. 16 But in relation to the plantations that 17 they grow in New Brunswick, seven year olds, and the 18 kind of plantation we grow in northern Ontario, at 19 least in the area I was working with, when I was down 20 there and saw this it sort clicked together in my mind 21 and finalized some of the ideas and talks I had on the level of management practice we should be practising in 22 23 Ontario. 24 In that part of the world where they can

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grow trees that fast and harvest them with a rotation

1 of 30 tp 35 years, you can certainly practice intensive 2 forestry and make profit at it which in the case of 3 this company, International Paper, they do. 4 Most of their forests are grown on 5 private land. In this particular case it is being 6 grown on their research station, that they operate 7 research stations to look -- to get involved in the 8 silvicultural techniques that they use for their 9 forests, the tree improvement program, et cetera. 10 They have their own research staff of 11 about a hundred people, including 20 scientists and 12 about 80 technical staff to work just on the company 13 research for managing the forest which, again, was 14 quite astounding compared to our situation in Ontario. 15 On the other hand, I think it all relates 16 to the productivity of the land. How much can the land 17 support and how much of the associated research, et 18 cetera that goes along with that productivity be 19 supported by it. 20 Q. This is now slide 37. 21 Continuing up the Shannon Road, we 22 are still working our way towards the Sankey wilderness 23 area and this was a former harvesting road that was 24 built mainly by the lumber operator but has since

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washed out. I would presume partially because of the

1 beaver activity and it has been rebuilt by the trapper 2 in the area that still wanted road access further up. This is now slide 370. 3 0. 4 A. This is a site of a former access 5 road. Again, you see the erosion pattern you can get 6 from the road. This road has essentially been abandoned, but I think the treatment could have taken 7 8 place there, perhaps it would be just seeded in or just 9 seeded over to put some type of cover on it to stop the 10 erosion. It basically is a clay road. 11 This is slide 375. 0. 12 My assistant and myself went into the 13 Sankey wilderness area, which is no short trek, and the 14 Sankey wilderness area is an area of, I believe, 76 15 hectares. 16 0. 76 acres, I believe. 17 A. 76 acres. 18 0. This is specified in the witness 19 statement, in any event. Page 378. 20 72 acres. Α. 21 Correct. Q. 22 And that conversion to hectares is 23 wrong. Was that corrected? 24 Q. It will be on the errata sheet. 25 Α. Okay. In the wilderness area there

1	was some evidence that some of the trees had been
2	harvested which was a surprise to me because at the
3	time the wilderness area was being harvested around, I
4	was really the one responsible for setting up the cut
.5	licences and I had set up it so there would be no
6	cutting in the wilderness area, which is rather
7	difficult because the cut was harvesting the blowdown
8	that had occurred around and through the wilderness
9	area.
10	Why did we go back and investigate it or
11	take a look at it to see if this area was really
12	harvested because I had heard after I left the area
13	that it had been harvested, but it's fairly difficult
14	to get access to the area.
15	However, when Patrick and myself did go
16	go back into the area we did find evidence that some
17	cutting had occurred in that wilderness area which is
18	somewhat contrary to what I think is the spirit of the
19	Wilderness Areas Act which states on page 278 of Volume
20	II, it is quoted as:
21	"Nothing in this act or in the
22	regulations made under this act limits
23	or effects the development or utilization
24	of the natural resources in any
25	wilderness area that is more than 640

1	acres in size."
2	Now, it doesn't say that you won't
3	harvest in a wilderness area under 640 acres, but it
4	doesn't say that you will harvest in the wilderness
5	area.
6	I had interpreted it, certainly when I
7	was management forester there, that you wouldn't be
8	harvesting in the wilderness area. In any case, the
9	total wilderness area did not seem to be harvested and
10	there were some areas where the harvesting appears not
11	to have occurred.
12	Q. This is now, I believe, slide 373.
13	A. The regeneration in that cut-over
14	area, around it and including some of wilderness area
15	is not what I would term successful either. There is a
16	great deal of alder and some balsam fir coming up, but
17	not a great deal of spruce.
18	Much of the area was balsam fir before,
19	but certainly there was a higher spruce component than
20	what there is at the present time.
21	Q. This is now slide 390.
22	A. This is part of the Hearst management
23	unit, but on the highway going down to Hornepayne,
24	south of Mooseland Esso and I showed this one just to
25	show the site where that's evident in the photograph

1 like this where a relatively large area has been 2 clearcut, where you go from the lowland area on the 3 upper middle left and go through a slope up to the 4 upland areas where you have more hardwoods growing and 5 some are left as residuals. 6 The basic thing is that you have at least 7 three basic sites in there, upland, midland and 8 lowland, if you like, but it has all been really 9 harvested the same and it hasn't been separated out or 10 treated differently. 11 Could it be any better? What I am saying 12 overall is that if you are going to try to make the 13 area a little more better for all the resources, it would be better to switch to a modified management type 14 15 of system. This, incidentally, photograph was taken 16 right from the highway, so the cut does come right up to the highway at that particular point. 17 18 So if you question the aesthetics of it, 19 some might object to the aesthetics appeal of the area. 20 Q. That concludes the slides with 21 respect to the Hearst management unit and I have no 22 additional questions. 23 I believe the next slides pertain to the 24 Mattawin/Dog River management unit. 25 Now, Mr. Benson, I believe from the slide

1 list that this is a new photo of a satellite shot and 2 one that was not previously provided with the prints; 3 is that correct? 4 That's correct. A. 5 And would you explain what this slide 6 demonstrates, please? 7 Α. This slide is another photograph of a 8 Landsat image. In this case, the bands that were used 9 to produce the image were different than in the 10 previous satellite images. So there is more of an 11 infrared band coverage in this image and, as a result, 12 the way it was interpreted and the rough way we are 13 interpreting it is a little bit different. 14 The white areas in this case, which are 15 fairly obvious, are the more recently disturbed areas. 16 MADAM CHAIR: Excuse me, Mr. Benson. 17 Most of those look pale green to me. 18 THE WITNESS: Well, the pale green/white 19 areas. 20 MADAM CHAIR: I just wanted to make sure 21 they were the same ones. 22 THE WITNESS: Whatever colours these area 23 appear, those are the most recently disturbed areas. 24 This particular area in here is where the clearcut 25 exercise for that particular management unit was

1	carried out.
2	The more red that you see, the darker the
3	red the more the conifer component. The lighter red
4	areas could be regeneration, be it hardwood or conifer.
5	It's hard you can't separate it out. At least I
6	can't on these images at the level we are working.
7	On the extreme right middle of the
8	photograph you can see the edge of Thunder Bay.
9	MR. FREIDIN: Ahhh.
10	THE WITNESS: Is someone homesick?
11	MS. SEABORN: Just Mr. Freidin.
12	MR. FREIDIN: Good old Thunder Bay.
13	MR. CASSIDY: Where is Thunder Bay? I
14	apologize. Mr. Freidin caused my mind to go back to
15	Thunder Bay. Can you tell me where it is on there?
16	THE WITNESS: On the right side of the
17	photograph, halfway up. That would be the west edge of
18	Thunder Bay.
19	MR. CASSIDY: Thank you.
20	THE WITNESS: You can see the highway
21	coming out a little above that. The thin narrow light
22	lines, that's the combined Highway 17.
23	MR. CASSIDY: Thank you.
24	THE WITNESS: And then as you move
25	further west you can see that the reddish colour

				_				
1	changes	into	more	of	a	green	colour.	

It merely indicates to me, looking at it from this perspective, looking at a large area, that you can see the change in the content of the forest where you have more of a hardwood content in the areas closer to the city that have been harvested in the past and your conifer content tends to increase the farther away you get from the city.

One more reason why you would say: Well, what has happened to the old cut areas, what have they changed into. This is a rough indication that there is a higher hardwood content than what there was before. It's a very rough indication, but it is an indication, but it is very easy and a very simple way to see what the change has been.

Mattawin/Dog River licence includes this area here south of the highway here. This area is now cut. It wasn't cut at the time. This area here, which is part of the clearcut exercise for the Mattawin/Dog River, the one clearcut map and the area south of Lake Shebandowan, this particular cut area here. (indicating)

MR. CASSIDY: Just before we move on to that photograph, Ms. Swenarchuk, you indicated that

1 that is a new photograph. Are you going to provide us 2 with copies of that? 3 MS. SWENARCHUK: If you think you require 4 them, Mr. Cassidy, we will provide them. 5 MR. CASSIDY: Can I get that before the 6 Christmas break? 7 THE WITNESS: That's the only one I have 8 of that, so you will have to take that one and get it 9 copied. 10 MS. SWENARCHUK: Yes, I think we can get 11 it within a week by copying the slide. 12 MR. CASSIDY: Thank you. 13 MADAM CHAIR: Did you want to put a 14 number on that new photo, Ms. Swenarchuk? 15 MS. SWENARCHUK: Perhaps we can call it 16 517. 17 MADAM CHAIR: Okay. 18 Q. The next slide is what number, Mr. 19 Benson? 20 A. 45. 21 45. Very well. Q. 22 A. This is an enlargement of the areas that I looked at. First, in the middle of the 23 24 photograph, upper middle of the photograph, the whiter 25 coloured areas were looked at immediately south of

- those that is now cut were looked at and then the area in the bottom middle is part of the clearcut exercise,
- 3 the one-year cut area, and the eastern portion of that
- 4 was examined.

13

- Q. This is now slide 64.
- A. This is the area to the north of the
 highway. It corresponds to the area in the previous
 slide. And, again, it indicates some of the type of -I don't know whether this is intentional reserve or
 whether it is just non-commercial timber, but it seems
 to be the more evident type of reserve that I could
 find in this particular location, were small patches of
- Q. Mr. Benson, do you have any idea what the size of the area is that was cut in this slide, 64?

non-commercial timber or small timber.

- A. I didn't measure that particular one.
- I could get a measurement for it, but I didn't measure
 that particular one, no.
- Q. All right. Very well. This is now slide 65.
- A. Same area. I suppose it's a tertiary road. Road quality is very -- quite a bit in the standards. The problem is that you are going to get erosion from a road like this. What happens after it is abandoned, do you still get erosion? Usually they

- aren't taken care after they abandoned or they not seeded in to prevent any erosion from them.
- Q. This is now slide 76.

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- A. Again, the variety of site indicated
 in this particular slide where you go from the lowland
 on the left to more of an upland on the right, from a
 wet area to a dryer area, to a more rocky area and in
 the background is Highway 11 on the way to Fort
 Frances. So in this case it was a clearcut right up to
 the highway again.
 - Q. This is now slide 78. You described this as ruts to bedrock caused by scarification of clearcut area, variety of sites evident, lowland on the right, upland on left and background poplar and white birch left.
 - A. You can see quite a variety of sites there. We see the lowland area in the middle upper right, the little green patch, and you can see the nature of the terrain.
 - This area was scarified and you can see
 in spots where the soil layer was deep, where the soil
 has been scraped right off the bedrock, where you would
 have to say that the scarification was a little bit
 heavy for that particular site.
- 25 It might not be heavy, too heavy later on Farr & Associates Reporting, Inc.

- in some of the areas where you have more timber on the
- ground, but it certainly was too heavy in that
- 3 particular location.
- Q. This is slide 59.
- A. This slide was taken in 1988 and it
- is an area that was scarified and, again, you can see
- 7 the effect of the scarification when you run into these
- 8 rocky areas, that the soil is taken off the rock and
- 9 exposing bedrock and, in effect, you are losing -- you
- are lowering the productivity of that area, you are not
- 11 raising the productivity of that area.
- Q. This is slide 62.
- MR. FREIDIN: I am wondering, we missed
- 14 slide 115.
- MS. SWENARCHUK: Did we?
- MR. FREIDIN: Yes. 115 was afterwards.
- Go back to the other slide. Was that 115 or was it 59,
- just so we don't get out of order.
- MS. SWENARCHUK: Sorry, I can't see the
- 20 numbers on my prints here.
- 21 MR FREIDIN: 115 is described as large
- 22 clearcut scarified to rock.
- THE WITNESS: This one now is 59, so the
- 24 one before--
- MR. FREIDIN: Was 115.

1	THE WITNESS:should have been 115
2	MS. SWENARCHUK: My apologies.
3	MR. MARTEL: Let's go back.
4	MS. SWENARCHUK: You want to go back?
5	MR. MARTEL: To 78 just to make sure I
6	have them right. If we could just back up two I think.
7	Is that 78?
8	THE WITNESS: That's 78.
9	MR. MARTEL: The next one is
10	THE WITNESS: Is 115.
11	MR. MARTEL: Okay.
12	MADAM CHAIR: Now we are on 59?
13	THE WITNESS: Sorry?
14	MADAM CHAIR: The next one is 59.
15	THE WITNESS: The next one is 59.
16	In this case it is showing the
17	scarification. This was a coring harvester where it is
18	pulling some shark fin barrels, followed by tractor
19	pads and anchor chains which you can't see too well.
20	You can see the shark fins barrels
21	partway back from the skidders. Those shark fin
22	barrels are right there and there. The anchor chain,
23	you can just barely make out here because. It also has
24	little iron bars welded to it at right angles and then
25	the tractor pads follow the anchor chain.

1	so there is really three rows. You have
2	got barrels, anchor chain and tractor pads, another
3	barrel, barrel, anchor chain and then somewhere in here
4	there should be a tractor pad. That's a fairly large
5	machine. It is much larger than a normal skidder.
6	MS. SWENARCHUK: Q. Now, what are you
7	attempting to depict with this slide, Mr. Benson?
8	A. Well, our silvicultural methods are
9	still relatively crude also. Scarifying with the
10	barrel, when I was a unit forester in '69 we were doing
11	that type of operation.
12	We didn't have an anchor chain attached
13	to it or the tractor pad, but we had the barrel in
14	front anyway. It is still a relatively crude form of
15	site preparation.
16	Q. Now, you have also
17	MADAM CHAIR: Excuse me, Mr. Benson, what
18	would you propose instead in this situation?
19	THE WITNESS: Well, the reason it is
20	being site prepared in this particular case is to plant
21	the area.
22	Now, this area probably, I would say:
23	Well, you could harvest the area to try to get natural
24	regeneration for the area. This particular spot,
25	though, they had another problem. It was an older

1 forest with a lot of spruce in it and balsam fir and it 2 suffered quite heavily from the spruce budworm. 3 they didn't have too much alternative but to harvest as 4 much wood as they could from the area. So it was a 5 difficult thing to do and how would they treat it 6 afterwards. 7 Myself, I wouldn't have scarified it this 8 way. I think I would have performed a lighter 9 scarification and seeded it for jack pine. It would 10 have been a cheaper treatment and I think it would have 11 been just as successful in the long run as the method 12 that's being used and less expensive. 13 MS. SWENARCHUK: I propose that we stop 14 here, Madam Chair. 15 MADAM CHAIR: Yes, it's four o'clock. 16 MS. SWENARCHUK: Mr. Benson will be 17 returning on January the 8th. Dr. Henderson will be 18 here tomorrow and Mr. Oliver will be beginning on January the 7th. 19 20 MR. LINDGREN: Madam Chair, before we 21 break I can advise the Board and the parties that the 22 documents required for Dr. Henderson are the Panel 2 23 witness statement, Exhibit 1433A, and the Panel 2 24 source book which I believe is Exhibit 1434. Those are 25 the only two documents that will be required.

1	MADAM CHAIR: Thank you, Mr. Lindgren.
2	MR. FREIDIN: Madam Chair?
3	MADAM CHAIR: Mr. Freidin.
4	MR. FREIDIN: It was today we received
5	copies of photographs that are going to be used by Mr.
6	Oliver. Hopefully there will be no problem with his
7	proceeding with his evidence on
8	MS. SWENARCHUK: January 7th.
9	MR. FREIDIN: January 7th. I haven't had
10	a chance to consult with anybody about whether that's
11	sufficient time to respond. If there is going to be a
12	problem I will let the Board know, otherwise I think we
13	should proceed on the basis that it's okay. I just
14	wanted to let you know that we just received that
15	today.
16	MADAM CHAIR: Thank you, Mr. Freidin.
17	MR. MARTEL: Any idea how long tomorrow
18	in direct?
19	MR. LINDGREN: I expect to be
20	approximately half a day in direct. I haven't had an
21	opportunity to canvass my friends as to how long they
22	will be in cross-examination.
23	MADAM CHAIR: Mr. Freidin?
24	MR. FREIDIN: I don't know. You should
25	ask Ms. Blastorah tomorrow.

1	MADAM CHAIR: Mr. Cassidy?		
2	MR. CASSIDY: 15 to 20 minutes at the		
3	most.		
4	MADAM CHAIR: Ms. Seaborn?		
5	MS. SEABORN: I would expect 15 to 20		
6	minutes as well.		
7	MADAM CHAIR: No one else is		
8	cross-examining?		
9	MS. SEABORN: I think just Ms. Blastorah,		
10	Mr. Cassidy and myself.		
11	MADAM CHAIR: Mr. Freidin, could you pass		
12	on the message to Ms. Blastorah that we would expect to		
13	finish tomorrow.		
14	MR. FREIDIN: We are talking about		
15	Henderson?		
16	MADAM CHAIR: Yes. Ms. Blastorah is		
17	cross-examining Dr. Henderson?		
18	MR. FREIDIN: I certainly am not. I will		
19	pass that along.		
20	MADAM CHAIR: Thank you.		
21	If the parties require twenty minutes a		
22	piece to cross-examine, Ms. Blastorah should be able to		
23	do it efficiently and you will spend how long in		
24	examination-in-chief?		
25	MR. LINDGREN: I am expecting to start		

1 and finish within the morning. 2 MADAM CHAIR: All right, fine. Thank 3 you. 4 Ms. Swenarchuk, we are moving through Mr. 5 Benson's oral examination and I would think we 6 shouldn't exceed one more day in completing the rest of 7 this. 8 MS. SWENARCHUK: Yes. 9 MADAM CHAIR: So, Mr. Cassidy, you will 10 be ready to ... 11 MS. SWENARCHUK: Mr. Hanna. 12 MADAM CHAIR: Mr. Hanna is going first. 13 We will notify Mr. Hanna to be ready as early as 14 January the 8th to cross-examine Mr. Benson. 15 MS. SWENARCHUK: I have never received an 16 estimate from him as to how long he expects to be. 17 ---Discussion off the record 18 MADAM CHAIR: I am saying Mr. Hanna 19 should be ready for the 8th because Ms. Swenarchuk 20 maybe finished on the 8th. The 7th is Mr. Oliver's 21 evidence and hopefully he will be finished the 7th. 22 MS. SWENARCHUK: It is possible we will 23 not take the entire day on the 8th.

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an estimate of time to the Board; is that correct?

I take it that Mr. Hanna hasn't conveyed

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1		MADAM CHAIR: Have we heard from Mr.
2	Hanna, Mr. Pas	scoe?
3		MR. PASCOE: (nodding negatively)
4		MADAM CHAIR: No. All right.
5		Thank you, Mr. Benson. We will see on
6	January the 8	ch.
7		THE WITNESS: Thank you.
8		MADAM CHAIR: We will reconvene tomorrow
9	at nine.	
10		the hearing adjourned at 4:00 p.m., to be Wednesday December 12, 1990 commencing at
11	9:00 a.m.	wednesday becember 12, 1990 Commencing at
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